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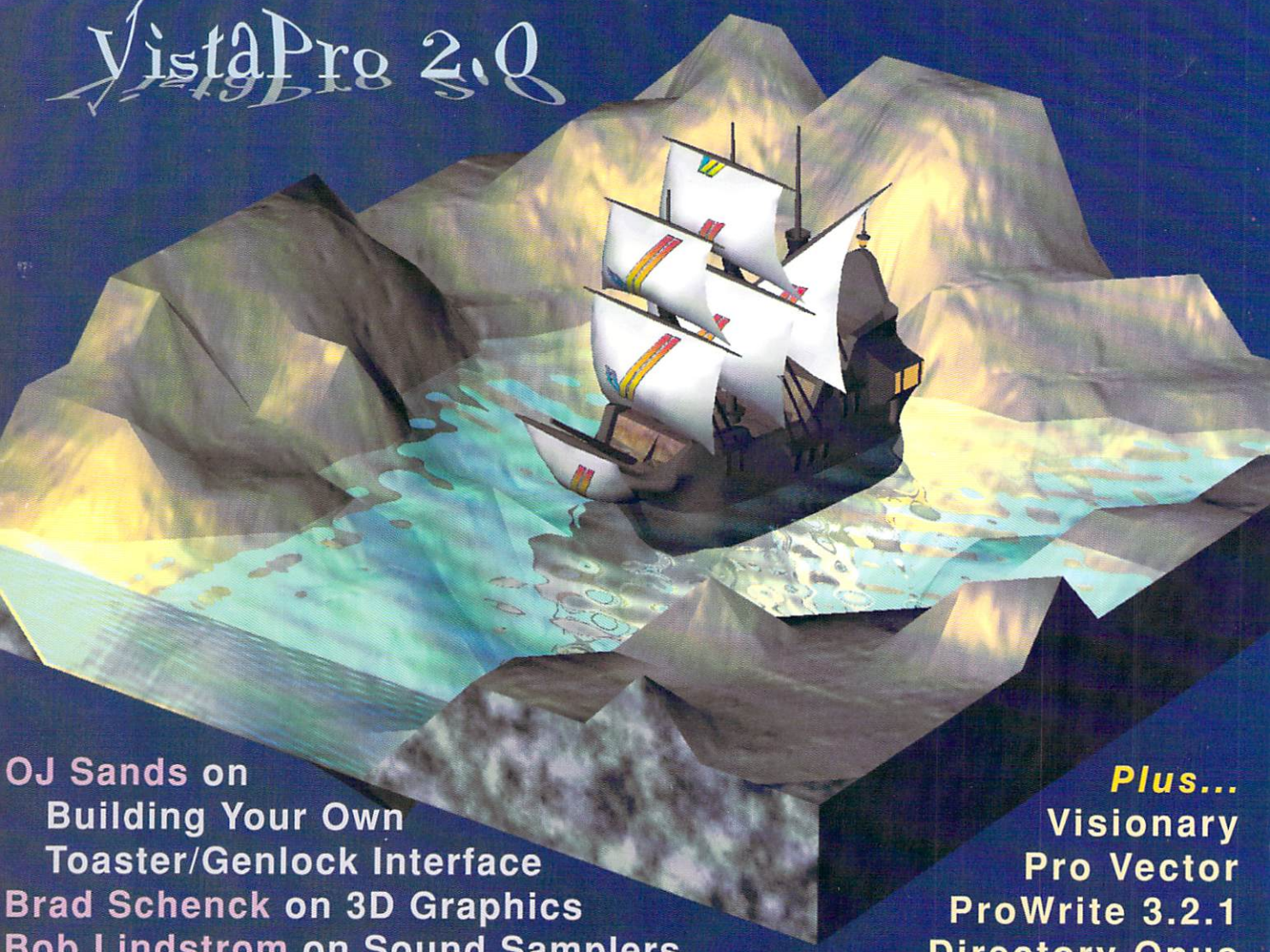

OJ Sands on Building Your Own Toaster/Genlock Interface

Brad Schenck on 3D Graphics

Bob Lindstrom on Sound Samplers

Plus...

Visionary

Pro Vector

ProWrite 3.2.1

Directory Opus

#47
February 1992
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Canada $4.50
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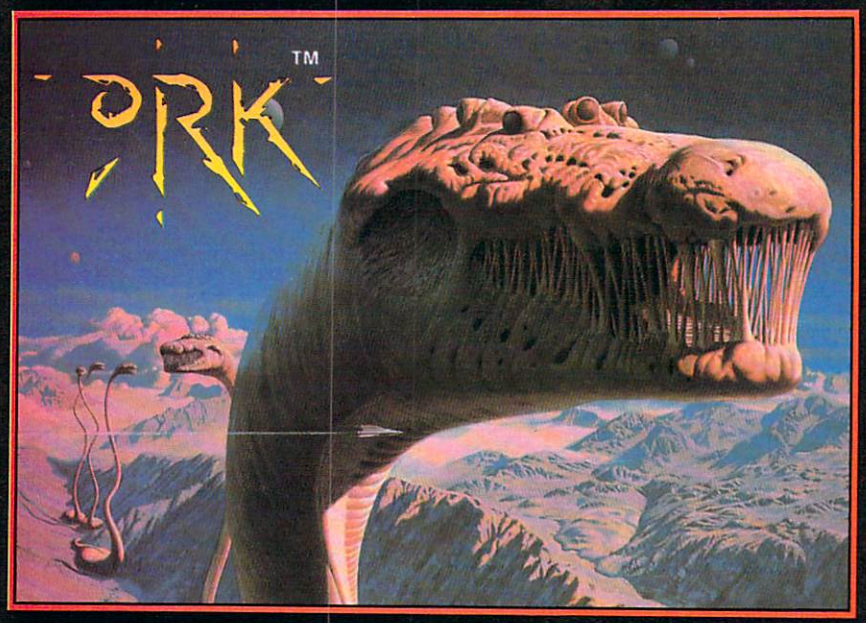


ORK

Beamed down to the planet Ixion from the Legion Ship, Cisskei, aspiring Captain Ku-Kabul has to face the dangers and tests specifically placed on this planet in order to prove himself worthy of Leadership. Failing any of the tests will end his career as a Legion-Command Officer . . . permanently!

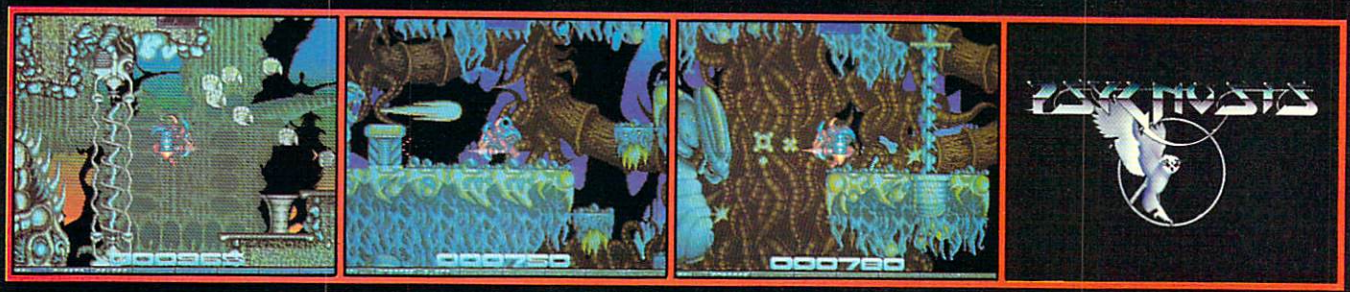
To give him a fighting chance, Ku-Kabul is fitted with twin laser cannons and refuelable jet boosters.

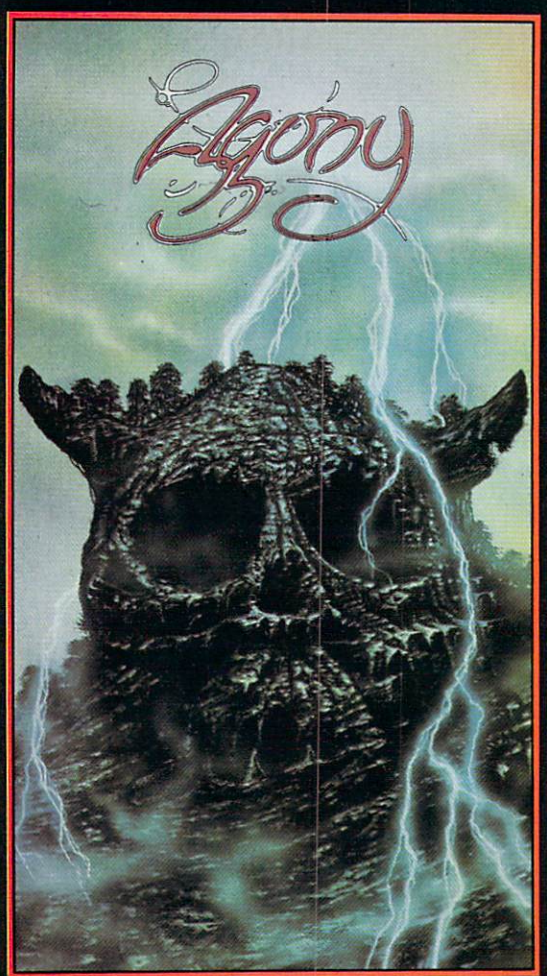
Using brains and brawn he must find, collect and use objects to solve the many perplexing puzzles and defeat the hordes of mighty enemies that infest this deadly arena.

3-layer parallax scrolling, arcade-speed action and powerful FX combine with total-gameplay addiction to bring you the experience that is Ork!

Are you Ork enough?

Screen Shots from the Amiga version.





AGONY

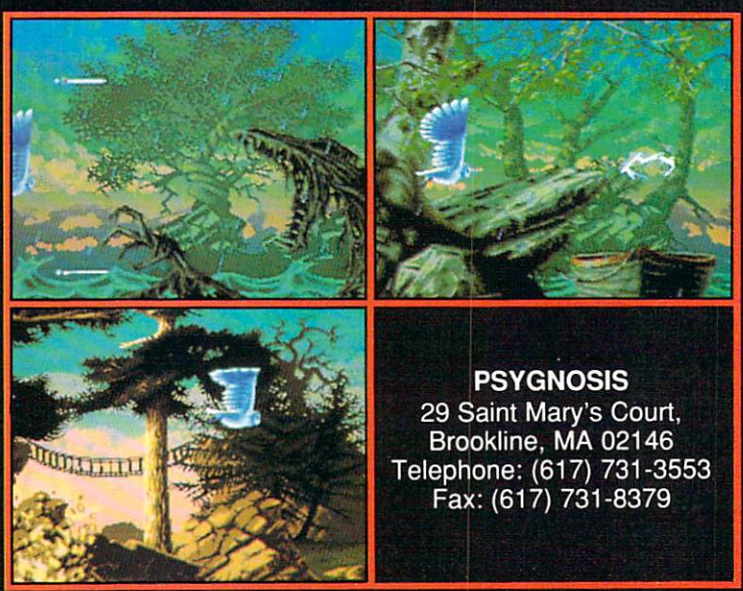
Pit your magical powers against an equal but opposite mystical force. Use your sorcery and fighting skills to battle through six graphically – excellent levels, each infested with hordes of beautifully-animated conjured-up creatures.

Pick up potions and spells to help your valiant struggle to find the secret of Cosmic Strength.

Experience four layers of incredibly-smooth parallax scrolling, animated backdrops, a massive play area, hundreds of on-screen colours, unbelievable gameplay and an exorbitant sound track all expertly mixed together and skilfully cast to bring you a spellbinding brew of computer gaming action.

Experience Agony with no pain!

Screen Shots from the Amiga version.



PSYGNOSIS
29 Saint Mary's Court,
Brookline, MA 02146
Telephone: (617) 731-3553
Fax: (617) 731-8379

LEANDER

Thanatos lurks in his lair, bathing in the power-giving life-force he is sucking from Princess Lucanna.

Princess Lucanna is dying: Imprisoned in the Sphere of Depletion her strength will soon be gone.

Meanwhile, Leander – Captain Of The Guards – kneels before his master seeking advice. He is told: *The princess is the balance between good and evil, if she dies, good dies and evil shall engulf the land.*

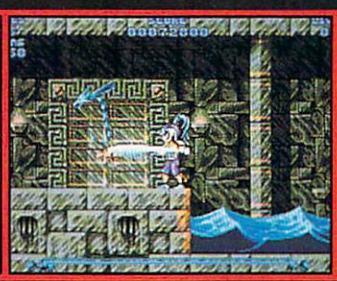
As Thanatos' power grows, the world succumbs to his evil grasp; Leander now has to face and conquer dangers beyond his darkest dreams before he can free the princess and save the land.

*You play the part of the Princess as she hangs around inside the Sphere Of Depletion waiting for Leander to rescue her. Will he make it?
Or will you spend the entire game doing nothing but having your life-force sucked?

Leander: Where heroes Sphere to tread!

*Psygnosis reserve the right to amend this storyline.

Screen Shots from the Amiga version.



BARBARIAN II

Necron's back in town and he wants revenge. Only you – in the guise of Hegor the Barbarian – have the courage, strength and stupidity to face the challenge:

It's time once again to don your dented hemlet, tie your sweaty breechcloth, sharpen your rusting sword and move your big feet in the direction of danger.

Forests, caves, dungeons, castles and temples await your barbaric exploration, each is infested with deadly inhabitants and devious traps ready to terminate your lowbrow activities.

Featuring 2,000 frames of sprite animation, 32 colours on-screen, parallax scrolling, 6 levels of continuous arcade/adventure action, over 1 megabyte of fully-animated sprites, 50 divergent enemies, Magic & Health Potions to help you on your quest and a plethora of unique weapons to find and use. **Barbarian II** is:

The ultimate in loincloth entertainment

Screen Shots from the Amiga version

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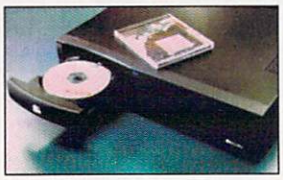
Issue #47, February 1992

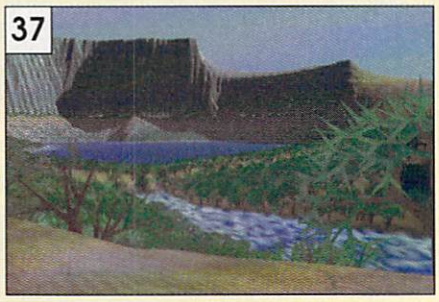
About the cover: This month's cover was rendered with a beta copy of New Tek's *Lightwave 2.0*. It is a whopping 3072 X 1920 pixels in 24 bit color (over 3 Megabytes). Also used were Byte by Byte's *Sculpt 4D*, Axiom's *Pixel 3D 2.0*, *Vista Pro*, and Digital Arts' *Apogee 3D Fonts 1*. As always, *.info* is produced and managed entirely with Amigas running off-the-shelf consumer software and peripherals. *.info* was the first magazine in the world produced entirely with personal computers

CONTENTS CONTENTS CONTENTS CONTENTS CONTENTS

CD-I vs. CDTV

Exclusive Head-to-Head Comparison
page 22





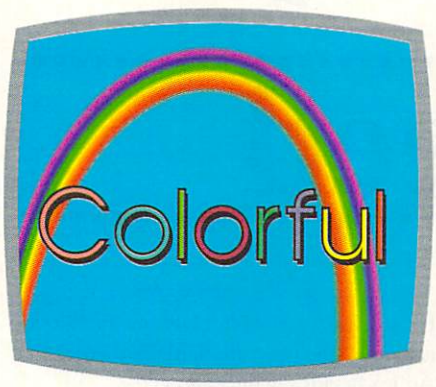
ProVisions

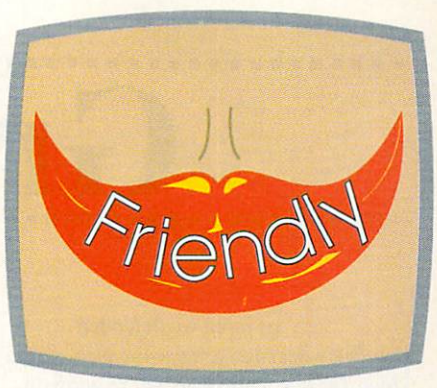
Columns

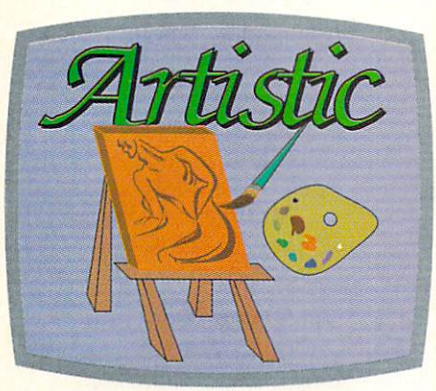
.info technical support

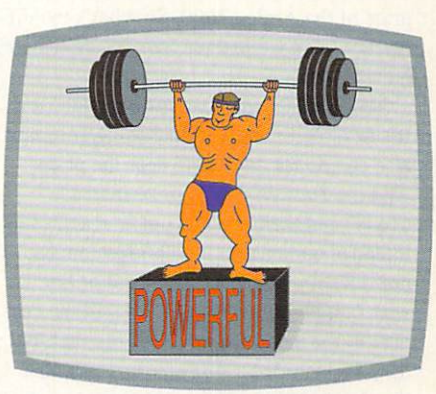
DEPARTMENTS

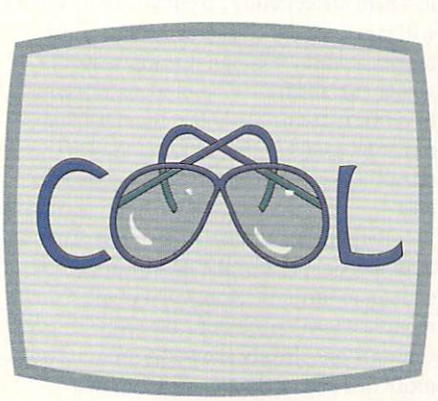
A few words about **ProVector**™, the professional illustrator's choice...











Each of the above drawings was created using just a few of the incredible number of features and effects in ProVector 2.1. Professionals and home-users alike are praising the remarkable speed, ease of use, and flexibility of ProVector. If you're serious about creating professional-quality structured artwork on your Amiga, ProVector is the only real choice.

Any questions?

Stylus, Inc.
P.O. Box 1671
Ft. Collins, CO 80522
(303) 484-7321
Mon.-Fri. 9-5 MST

All illustrations were created with ProVector 2.1, then imported into Saxon Publisher 1.1 to create this ad. Registered owners of ProVector 2.0, be sure to contact Stylus, Inc. for upgrade information, you'll find a tremendous number of additional features and functions in ProVector 2.1 over previous versions. ProVector is a trademark of Stylus, Inc., Saxon Publisher is a registered trademark of Saxon Industries, Amiga is a registered trademark of Commodore-Amiga, Inc.

Circle #128 on the Reader Service Card

Greed

Last issue we defended NewTek's decision to raise the price of the *Video Toaster*. This issue, we're going to take Commodore to task for raising the price of the Amiga 2000. So what's the difference? Are we just playing favorites here? No way.

NewTek's product is 'cutting edge' stuff. It's new technology. It does things nothing else can do for anywhere near the price. And the *Toaster*'s $900 price increase doesn't put their product out of reach of its intended audience (video professionals), nor does it place the *Toaster* out of line with competing products - it's still the best deal in the marketplace. Not only that, but they've included a software upgrade that they're charging $400 for separately, which helps soften the blow somewhat. Best of all, if a Macintosh or MS/DOS user wants a Toaster, he's got to buy one pre-installed in an Amiga box. That's pricey. But an Amiga owner can just buy one and plug it into a slot. Even with the price increase, it's still a *lot* cheaper for an Amiga owner to get 'Toasterized.' So if NewTek wants to charge more for the Toaster, let 'em. This is a competitive marketplace, and if they can compete effectively at a higher price, so be it.

But Commodore's recently announced price increase for the A2000 is, we feel, completely unjustifiable. The 2000 is six-year-old technology. No matter how wonderful the Amiga is, the 2000 is still basically a one megabyte, 7.14 MHz 68000-based, six-bitplane computer. It's been leapfrogged by the technology of other manufacturers. And those manufacturers are selling their machines at a much lower price: under $1000. At the 'special' pre-January 1st price of $999, the A2000 was almost competitive, if still a little pricey compared to other PCs. But the A2000 simply can't compete at all at a suggested retail price of $2000. Nobody will buy one. Nobody. Even *we* wouldn't buy one for $2000, and we're the most die-hard, hard-core Amiga fanatics in the galaxy!

Even a bounce up from the $999 holiday 'special' price to the previous 'suggested retail price' of $1600 would have been tough to justify in the current depressed North American computer market. There's simply too much high-quality, low-priced competition. But an effective *doubling* of the price is just incomprehensible. We already hear from *lots* of people who are teetering on the edge of the question 'Should I buy an Amiga or a cheap '386 clone?' Commodore's new pricing is bound to push them over the edge.

Truth is, Commodore can't justify this price increase. There's no good reason for it. There are certainly no enhancements that will convince the consumer he's getting his money's worth. Though it's impossible to get any details from Commodore as we go to press, it seems likely that the most that might be added to the A2000 is the 2.04 operating system ROM, a $100 upgrade at best.

Inflation isn't enough to justify it. The international price of the dollar isn't enough to justify it. And worst of all, Commodore doesn't even need the money! Commodore already showed a pretty good profit last year selling Amiga 2000s at prices *much* lower than $2000.

If Commodore ever expects there to be a reasonable number of Amigas in the good ol' US of A, they need to price them competitively. That's always been Commodore's strong suit. They've always delivered excellent value for the dollar. But not this time.

If Commodore doesn't cut back the price on the A2000 immediately to its previous 'special' price - or even lower - it could mean the end of A2000 sales in North America altogether.

- Mark & Benn

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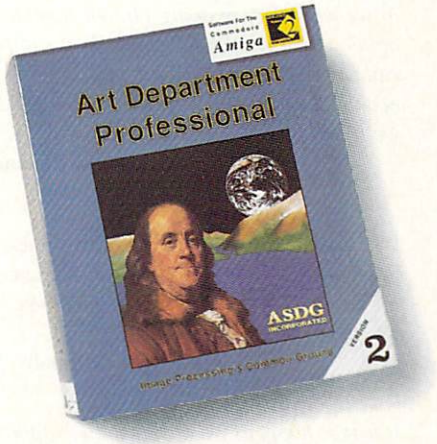

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I have a couple of questions, and I was hoping you might answer them for me. First, how does one get ARexx? I assume there is a program, right? Is it on CompuServe, or what? I have never seen it in a store. Second, when manufacturers of 030's & 040's talk about cache memory - what is that? What is 32-bit memory and how does it differ from what I have now? Why would I want that, and what about the 4 Megs I already have? Is 32-bit in addition or does it replace my card?

- Dave Koch, CompuServe

There are two ways to obtain ARexx. Its use has become so widespread that Commodore has included it as a part of the new 2.04 release of Workbench. ARexx is also available directly from: Wishful Thinking Development, PO Box 308, Maynard, MA 01754. It costs $49.95.

The memory you have now would work fine in conjunction with any 32-bit RAM you add. The Amiga proper can address only 9 megs of RAM, but accelerator cards with 32-bit cpus can address much more. Not only that but they address it four bytes at a time (32 bits) instead of two bytes at a time (16 bits) so it works much faster. 32-bit RAM addressing is actually where a great deal of an accelerator's speedup comes from. 'Cache' RAM is special memory allocated to buffer blocks of data or program instructions for the cpu. Since the data and instructions are all lined up and 'ready to go', the cpu saves time in not having to fetch stuff from the main RAM memory banks. Most 32-bit cpus support data cacheing, instruction cacheing, or both. Hope this info helps! Good luck.

- Mark & Benn

I have a suggestion to improve your magazine. Make it a little larger, meaning more pages! You can do this by either actually adding more pages or making your print smaller, you have the largest style print of any Amiga magazine that I read. Overall, it is still a good magazine.

- John M. Lynn, GEnie

We'd love to make .info *a little larger. However, adding pages isn't just a matter of stapling them in. They have to be paid for and with the current economic conditions, advertisers are being much more conservative in how many ads they place and those ads are what pay for more pages. The type we use is the same size - 9-point - that most other magazines use. If we make the print any smaller, you'll have to use a magnifying glass to see it. (And the* .info *editors and writers will have to get thicker glasses to see what they're doing.) In our humble opinion, you're still getting the best editorial coverage of the Amiga industry. As economic conditions improve during 1992, we'll add pages when we can.*

- Benn & Mark

I caught the tail end of something on CNN about a big project to transfer books to disks, or maybe CD-ROMs. Do you know anything about it?

- J. W. Shawnessy, Indianapolis, IN

It just so happens we do. It's called, appropriately enough, Project Gutenberg. We contacted Michael S. Hart, the director of the project, and we'll quote here what he had to say about it:

The purpose of Project Gutenberg is to encourage the creation and distribution of English language electronic texts. Our goal is to provide a collection of 10,000 of the most used books by the year 2001, and to reduce the effective costs to the user to a price of approximately one cent per book, plus the cost of media and of shipping and handling. Thus we hope the entire cost of libraries of this nature will be about $100 plus the price of the disks (or CD-ROMS) and mailing.

So far most electronic text work has been carried out by private individuals, with several library or college collections being created, but being made mostly from the works entered by individuals on their own time and expense. This labor has largely been by those who see future libraries as computer searchable collections which can be transmitted via disks, phone lines or other media. These electronic books will not have to be rebound, reprinted, reshelved, etc. They will not have to be reserved and restricted to use by one patron at a time. All materials will be available to all patrons from all locations at all times.

Therefore, we call on all interested parties to get involved with the creation and distribution of electronic texts, whether it's a commitment to typing, scanning, proofreading, collecting, or what ever your pleasure might be. Please do not hesitate to send any e-texts you might find to this Internet address: hart@vmd.cso.uiuc.edu. Disks can be sent to: Barbara Duncan, Duncan Research, PO Box 2782, Champaign, IL 61825.

Current book texts and an index of available texts can be retrieved on Internet by anonymous FTP to 'mrcnext.cso.uiuc.edu', directory 'etexts'. Please do not access the system during "prime time" hours, but restrict your use to between 10 PM and 6 AM.

- Michael S. Hart, Director, Project Gutenberg, National Clearinghouse for Machine Readable Texts.

We've actually downloaded several of the texts, including 'Alice in Wonderland,' 'Through the Looking Glass,' and 'Peter Pan.' (Can you tell what kind of reading we enjoy around here?) Unfortunately, we know of no readily-accessible pay network or public BBS that is carrying the works of Project Gutenberg. You must be able to access Internet to download their e-texts. We think Project Gutenberg is a splendid idea.

- Mark & Benn

WHAT THE CRITICS SAY – "A FIRST CLASS CONVERSION"

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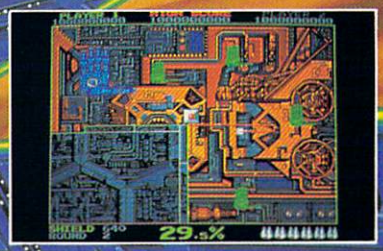

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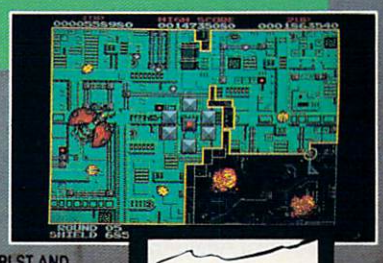

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ARCADE Masters

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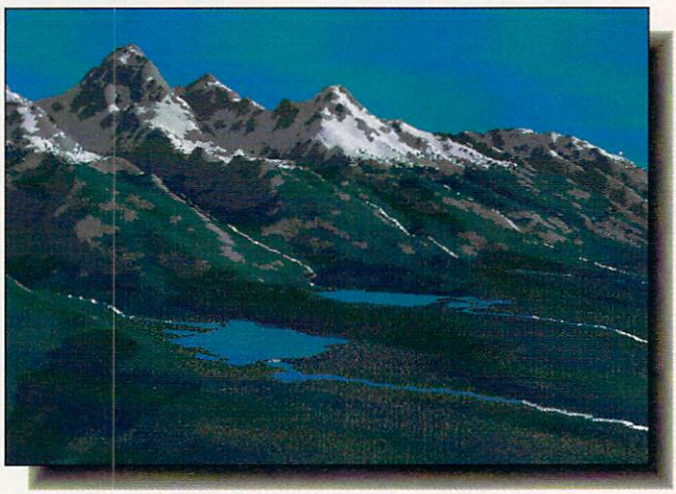


Image of the Grand Tetons rendered from DEM data with MicroIllusions' *Genesis: The Third Day.*

IN THE BEGINNING

MicroIllusions is shipping **Genesis: The Third Day**, their fractal landscape generation software. *Genesis*' controls are extremely detailed, covering everything from shading to the width of rivers to how rough the surfaces are. The software can handle up to 118,000 points, 236,000 triangles, 1200 springs, and 2500 lakes, more than you're ever likely to need. While landscapes based on fractal seed numbers are *Genesis*' strong point, it can also accept DEM data to render real-life locations. Using an overhead wireframe representation of the landscape, you first place your viewpoint and the focal length, after which the wireframe changes to a side view, where you set the viewing height and the light source. This translates into a WYSIWYR (What You See Is What You Render) system. Five levels of recursion are provided and you can use the lower ones to quickly generate rough sketches of the landscape. There is extensive ARexx support along with automatic scripting for making animations. These scripts can be created by recording menu selections or, if you don't mind a little work, by writing them from scratch with your wordprocessor. *Genesis* directly supports MicroIllusions' *Photon Video Transport Controller*, so you can render the animation frames directly to a single-frame video recorder. Another output option besides IFF images in all the usual resolutions, is as object files for *Turbo Silver 3.0*, *Sculpt 3-D*, *Sculpt-Animate 4-D*, and *Videoscape 2.0*. (*Genesis* doesn't currently support 24-bit files, though that's promised for the next update.) $149.95. PO Box 3475, Granada Hills, CA 91394. 818-785-7345. RS #207.

NEW ABACUS REFERENCES

It is a little difficult trying to be objective about the two latest Amiga reference books published by *Abacus*. **Using ARexx on the Amiga** was written by Chris Zamara and Nick Sullivan of *.info*'s technical section. The book has 424 pages of practical information on putting ARexx to work in your own computing. All of the ARexx commands are covered and there are copious examples throughout the book. A disk of examples is included to save you having to type them in. There are also sections on how to use ARexx with a whole slew of commercial applications that support it. Cover price is $34.95.

The second new Abacus book is **AmigaDOS Inside & Out**. This revised edition covers Workbench up through 2.0. The 318 pages fill you in on all of standard C: commands, using the Shell, creating and working with scripts (including startup-sequences), multitasking dos and don'ts, and the best section on ARexx that has ever been written, or ever will be written, in the entire universe. (While it isn't credited anywhere in the book, the ARexx chapter was written by *.info*'s own Managing Editor, Mark Brown.) $24.95 from Abacus, 5370 52nd Street SE, Grand Rapids, MI 49512. 616-698-0330. RS #200.

New Products now have Reader Service Numbers!
If you want more information on a product just look for the RS# at the end of each description and circle the corresponding RS# on one of the handy Reader Service Cards.

ULTIMATH

Just a year ago in the February '91 issue, we told you about *Waterloo Maple Software's* Amiga version of their widely-used **Maple V** mathematical software. Not long after that, the company told us that because of some technical problems, it wouldn't be released until Commodore finalized 2.0. Now that AmigaDOS 2.04 is shipping, so is *Maple V* (it won't run under earlier versions of AmigaDOS). It is, without question, the definitive mathematical program for the Amiga and, for that matter, the definitive Amiga scientific program and one of the most significant releases in the Amiga's career. *Maple V* requires a minimum of two megs of RAM and ten megs of disk space, which is to be expected for a program of this scope. Listing all of *Maple V*'s functions would take up most of the pages in this issue; suffice it to say that there are over 2000 of them. The software is organized as a small kernel with an enormous library of functions that can be called from it. It has a procedural programming language similar to Pascal and has the capability to generate procedures automatically from aliases, expressions, and macros. Two functions in addition to the mathematical ones are of particular interest, one is for Fast Fourier transforms and the other is a *Maple* to 'C' translator. Both 2- and 3-dimensional graphic plots are supported, with optional hidden line removal. As an indication of how much attention has been paid to adapting *Maple* to the Amiga environment, there is ARexx support for all of its functions. Output can be to IFF files, a variety of printers, and even what Waterloo Maple calls 'interactive 3D PostScript,'

meaning that you can manipulate what you see on-screen (rotate it, recolor it, and change other parameters) and then output the results to a PostScript file or printer without having to recalculate everything first. If you've ever tried formatting a mathematical formula either on-screen or on paper, you know what a nightmare it can be, but *Maple V* takes this into account by allowing users to define how it displays things like polynomials, plots, integrals, and so on.

Besides being such an extraordinary program in its own right, *Maple V* is also important for the company it keeps. There are versions for virtually any platform you can name, from Apollo to VAX to Sun to Cray. *Maple V* carries a site-license pricetag of $450, which is a bargain for this level of software, especially when you compare it to the cost of other versions. For example, the MS/DOS edition lists for $695 and the Cray version for $8995. *Maple V* is used by universities worldwide and Waterloo Maple offers a special academic price of $395 (single license). Upgrades to future versions are free and will be sent automatically. There are other licensing arrangements available, including campus-wide ones. Among universities which have taken that option are Stanford, Rensselaer Polytechnic, Johns Hopkins, Notre Dame, McGill, and any number of state universities, including Iowa, Illinois, Kentucky, Michigan, and on and on. For more information, contact Waterloo Maple at 160 Columbia Street West, Waterloo, ON Canada N2L 3L3. 519-747-2373. RS #201.

GENLOCK

Roctec Electronics has a new genlock on the market. Called the **RocGen Plus**, the $379 device features an RGB pass-thru, something far too few genlocks, particularly reasonably priced ones, provide. Besides that, there's also a composite pass-thru so you can keep an eye on your video source. Once you have everything hooked up, you can perform fades and dissolves using the two independent manual controls. In addition to the RGB and composite ports, there is another jack for key-in, which is designed for chromakey input. Roctec will be shipping the companion chromakeyer in the first quarter. 170 Knowles Drive, Suite 202, Los Gatos, CA 95030. 408-379-1713. RS #203.

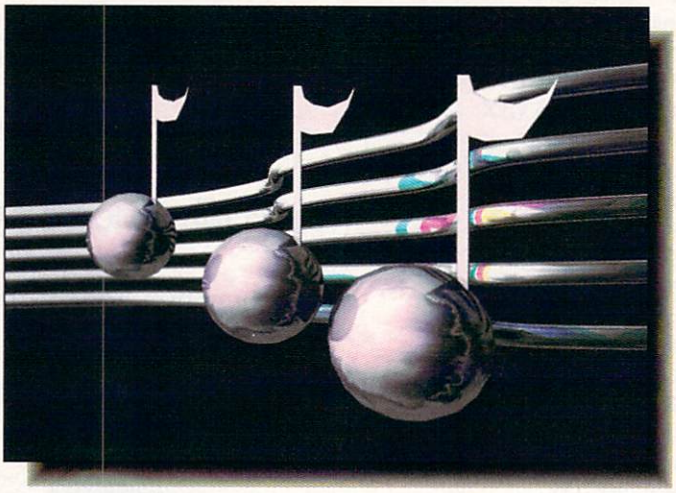
FRAME BY FRAME

Getting an animation from your computer onto videotape is a tedious and usually expensive proposition. *Sony* is making the process much easier with their **EVO-9650 Hi8 Video Deck**. Retailing for under $6000, the frame-accurate recorder can be controlled via either RS232C or Sony's VISCA protocol. The Hi8 format provides over 400 lines of resolution and the machine can accommodate a slide-in video encoder with options for RGB to NTSC, S-Video, or composite, depending on what your needs are. Incidentally, using the Sony VISCA protocol allows the *EVO-9650* to be used as a component of a VISCA network, meaning that up to seven video devices can be independently controlled from a single serial port. We expect to see a lot more Amiga video animations now that this is on the market. Sony Drive, Park Ridge, NJ 07656. 201-930-6432. RS #206.

NEW FROM CANON

Laser printers have been steadily improving over the years and *Canon* has a couple of new ones that are worth looking at. The **LBP-4 Plus** (the LBP stands for Laser Beam Printer) can

NEW PRODUCTS



This graphic by Derek Grime is included in Frostbyte Systems' *Beyond Backgrounds* collection.

output four pages a minute at a resolution of 300 dpi. The compact box (it's only 13 13/16" x 15 7/8" x 8", 22 lbs.) has nine built-in scalable fonts and 16 bitmap ones, both serial and parallel inputs, and comes with 512K memory standard, expandable to 2.5 megs. The **LBP-8** can produce 8 pages per minute and while it's a little bigger (17 7/8" x 20 11/16" x 9", 45 lbs.), it can also do more. It has 9 built-in scalable fonts, 16 bitmap, twin paper cassettes, and comes with 1.5 megabytes of RAM, expandable to 4.5 megs. As yet, there's no Amiga driver for the things (though there probably will be). However, that's not why we're mentioning them. Both printers have slots that will accept an optional PostScript cartridge (retail $695) containing 39 Adobe typefaces. Based around the widely used Canon SX engine, the LBP series uses standard Canon toner cartridges. The *LBP-4* retails for $1545, while the *LBP-8* goes for $2495. One Canon Plaza, Lake Success, NY 11042. 800-848-4123. RS #204.

BACKGROUNDER

Want a new look for your videos? *FrostByte Systems* (we love the name) has released a 10-disk collection of 24-bit backgrounds designed by renowned Amiga artist and occasional *.info* contributor Derek Grime. The IFF-24 images are in 736x480 overscan and are compatible with all the current 24-bit display boards (*Impact Vision 24*, *Firecracker 24*, *DCTV*, and *HAM-E*). **Beyond Backgrounds** consists of 10 disks and can be yours for $99.95. PO Box 481, Station D, Toronto, ON Canada M6P 3K1. 416-769-7516. RS #213.

A MATTER OF TIMING

Video equipment keeps getting more and more sophisticated and the latest we've been drooling over is *Digital Processing Systems*' **DPS-230 Component Transcoding TBC**. Besides being a time-base corrector to use with the Toaster, the device has lots of other goodies, too. It has both NTSC and S-Video in and out (at a full 5.5MHz bandwidth in S-Video), variable strobe, digital proc. amp. controls with non-volatile memories (I wish my memories were non-volatile), digital color balance controls, freeze-frame and field (with field being selectable 1-3), and infinite window memory. The genlockable unit also has horizontal position control, adjustable Y/C delay, advance sync output, and RS-232 remote control. Cost of the *DPS-230* is $1995. 55 Nugget Avenue, Unit 10, Scarborough, ON Canada M1S 3L1. 416-754-8090. RS #205.

P.S. FONTS

Unsatisfied lusting after Macintosh PostScript fonts has long been a fact of life in Amiga desktop publishing, but things are changing. *Mirror Image Productions* has released **MIfont 1.1**, a utility that will translate any Mac PostScript bitmap screen font into both an on-screen bitmap font and a companion *.metric* font that can be used in *Professional Page*. The screen fonts come in a minimum of five point sizes and while the most obvious use is for accurate on-screen representations in *ProPage*, they can also be used in any other program that uses bitmap fonts, such as *DPaint*. It should be noted here that *MIFont* will convert any Type 1 PostScript font, whether it's Mac or IBM, though the emphasis is on Mac. Mirror Image has obtained permission from Adobe to release their 200 volumes of Mac PostScript screen fonts in Amiga format, which they're doing at public domain prices.

A second utility called **MIoutline** performs a similar function in converting Mac or IBM (with the new cooperation with Apple, shouldn't that be changed to 'We'BM?) Type 1 PostScript printer fonts into *Professional Draw* outline fonts, including kerning tables. There's also a Visual Index function that will generate type spec charts showing the key combinations needed to call the characters in *ProDraw*, which is particularly useful for symbol fonts. *MIFont 1.1* retails for $105, *MIoutline* for $125, or both for $180. The font disks are $7 each or you can get the first 33 disks for $175. Mirror Image Productions, 30 Aurora Court, Suite 1209, Scarborough, ON Canada M1W 2M3. 416-495-7469. RS #208.

THE MIDI-EROONY

Though the name sounds a lot like a Saturday Night Live sketch, **The PatchMeister** is really a new MIDI patch librarian from *The Blue Ribbon Soundworks*. We still love the name, and the software sounds pretty good, too. Some of the features are an unlimited number of Banks and Libraries, context-sensitive online help, automatic MIDI driver creator, auto-audition and playback, and point-and-click bank editing. MIDI setup options include snapshots, SysEx attachments, and setup files. *The PatchMeister* is designed to integrate into *Bars&Pipes Professional* and its window can be popped up on *B&P Pro*'s screen. A bunch of MIDI synth drivers are included: Casio CZ series, Ensoniq ESQ-1, Kawai K1/3, three flavors of Korg,

Kurzweil K1200, along with several Roland and Yamaha models. Price is $99.

We're not even close to done with Blue Ribbon Soundworks yet. They're also releasing a new MIDI interface, the *Triple Play Plus*, which has three separately addressable MIDI-out ports, which means you can play 48 MIDI channels at once. We think that's a new world record for the Amiga. If that still isn't enough for you, the device also has a MIDI thru port. The included software has a *Bars&Pipes Professional* Tool specific to the interface. Cost is $179.

Originally intended to be released as *JAM!*, Blue Ribbon Soundworks has changed the name to **SuperJAM!**. There was some apparent confusion with other music programs on other platforms. In any case, *SuperJAM!* is an automatic music writing program, something non-musicians can make music with. Following in the tradition of *Music Mouse* and *Instant Music*, *SuperJAM!* is considerably more flexible and versatile. It offers automatic creation of chord progressions, rhythms, and accompaniments and using what the company calls 'TurboSound Technology,' it can play more than four Amiga samples at once. According to BRS, this is done by mixing samples together on the fly. On a stock 68000, six or seven can be handled, but on an '030 machine, up to 16 samples can be mixed and played at once. The package even contains a utility for editing your existing collection of IFF samples to use in *SuperJAM!* The program creates music in a variety of styles: rock, funk, samba, swing, and so on. While it can be used as a stand-alone program, like other Blue Ribbon Soundworks products, *SuperJAM!* also fits into the *Bars&Pipes Professional* environment, so it can be used as a MIDI composition tool as well as for Amiga internal music. List price is $149. 1293 Briardale NE, Atlanta, GA 30306. 404-377-1415. RS #209.

FONTS IN SPACE

Unili Graphics is shipping a new version of their **Broadcast Fonts 3D** in *Lightwave 3D* format. There are nine typefaces divided into three volumes and all of them contain full character sets including uppercase, lowercase, numerals, and symbols. They're designed with Phong shading in mind and have named polygon ranges for the fronts, backs, and sides to make setting attributes easier. You can get all three volumes for $149.95 or separately for $49.95 each. 143 Lorraine Avenue, Pittsburg, CA 94565. 510-439-1580. RS #212.

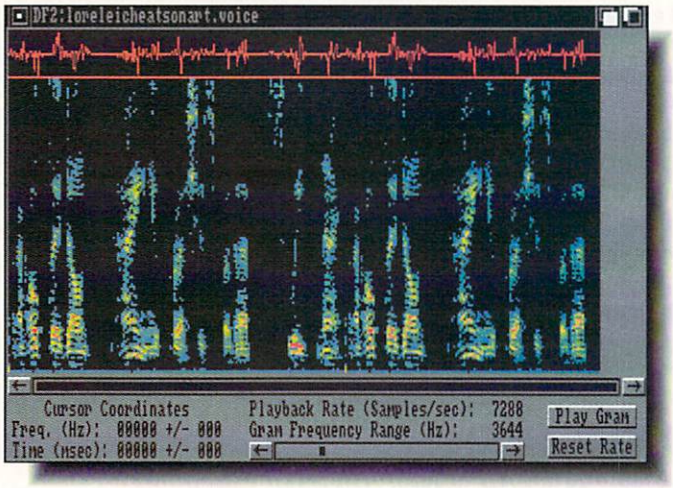
SCALA SCALED DOWN

Scala is one of the best video titlers around, but until now, it has had limited use since it requires a full megabyte of chip RAM to run. *Digital Vision*, the Norwegian developers, have now released a scaled-down version called **Scala 500**. Marketed in the US by *Great Valley Products*, this incarnation needs only the standard half-meg of chip RAM and still retains most of the functionality of its bigger sibling. The primary differences are that *Scala 500* doesn't support animations, interactivity, or anti-aliasing. Text is still handled in the same simple way and such effects as dropshadows, extrusion, tilting, and so on can be applied to the four included fonts. There are also plenty of wipes and transitions to choose from, including credit scrolling, and the package comes with two disks of clip art and backgrounds specially created for home video use. The price is $179. Great Valley Products, 600 Clark Avenue, King of Prussia, PA 19406. 215-337-8770. RS #202.

Public Domain by Jeff Lowenthal

Sound, Thought, and Adventure

Interesting stuff this month! Browsing on GEnie, I found *Amiga Spectrogram* **[GEnie #12779, *Sndtoys.lzh*]**, a program which graphs out any 8-bit sound sample you choose to load. The result is a colorful representation of your voice or sound determined by frequency content. Also provided is a small oscilloscope-like trace showing amplitude. Together, these two graphs can tell you a lot about the sample. In fact, this sort of analysis is the basis of the "voiceprint" technology used in law enforcement to determine if two separate speech samples are the voice of one person. This kind of investigation requires great skill, but you can have fun with *Spectrogram* without a Ph.D in acoustic engineering. The program will also play your sample at various speeds. The *Sndtoys* archive also includes *AudioScope*, a real-time oscilloscope, designed to work with the *Perfect Sound* digitizer. Unfortunately, it requires an accelerated Amiga due to the immense number of calculations required.



Spectrogram analyzes a sound sample.

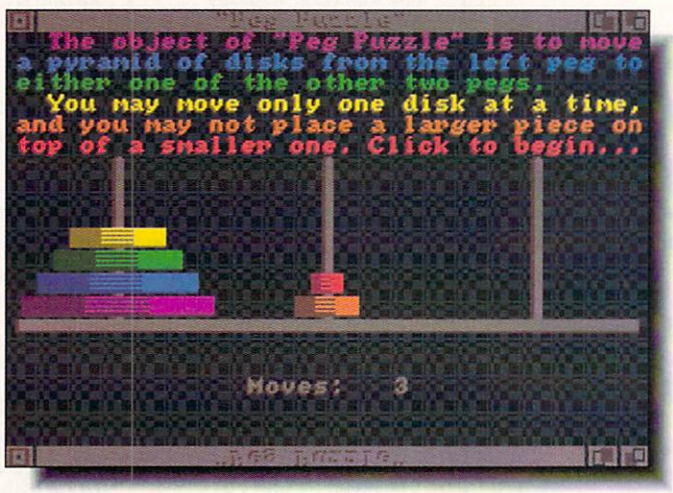
Premier Software

Mind Games disk contains 21 - count 'em - brain teasers for young and old. Some have been around awhile, but they remain as difficult as ever. There are word games like Hangman - called *Gallows* here - and challenges of a different sort like the famous *Towers of Hanoi* puzzle. *MindGames* is a great way to obtain a disk packed to the brim with hours of entertainment and frustration. Try it, you and/or your kids will love it. If you have a 1 meg or more machine, you get the MindGames interface which is a slick *CanDo*-based menu. 512k users can still play all the games, but without the neat interface.

Digital Expressions

Enchanted Realms is both a disk series and a very nicely produced magazine with disk ($39.95/six issues) for adventure gamers. Their *Adventure Game Treasury* contains many of the good Amiga adventures, and the magazine includes lengthy, serious, and often critical reviews of both PD and commercial games. The disk included with Issue #7 contained demo versions of several Accolade games, including the rather bloody *Elvira*. The text part of the disk is produced with humor and even sound effects as you page through it.

PD and shareware adventures sent to me included *Star Trek, NetHack 3.0, The Holy Grail*, and *The Golden Fleece*. TACL Adventures were created by users with *The Adventure Construction Language* program, and may be completed in less time than the more massive commercial programs. Digital Expressions appears to be a good source in this specialized area, and Editor Chuck Miller can be proud of the disks and the magazine.



Towers of Hanoi, from Premiere's *Mind Games* disk.

SOURCES

Premier Software, PO Box 3782, Redwood City CA 94064, 415-593-1207

Digital Expressions, PO Box 33656, Cleveland OH 44133, 216-582-0910

GEnie Online Services, 800-638-9636 for signup information.

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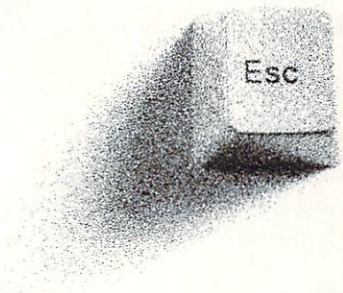

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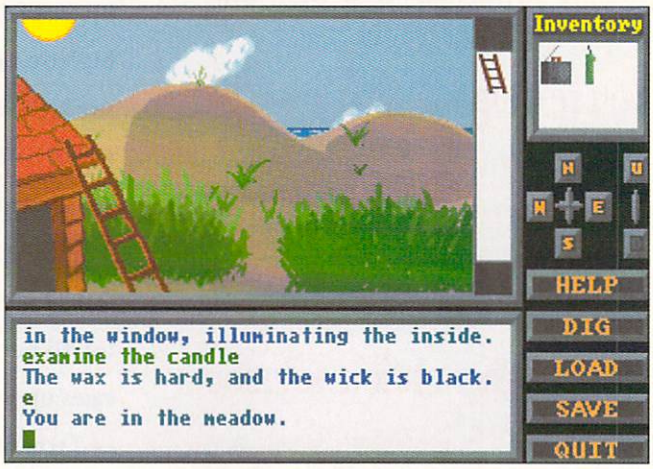
Visionary

by Mark R. Brown

If you're a moderately knowledgeable BASIC programmer, a hot-shot adventure gamer, and a halfway decent Amiga artist, then the odds are good that at some time or another, you've played a graphic adventure game and said to yourself, "Hey! I could write a better game than this!" Well, now you've got no excuses. You *can* write an adventure game of your very own.



"I Was a Cannibal for the FBI," an entertaining sample *Visionary* adventure from John Olsen's book/disk set.

Seeing Visions

Visionary from OXXI/Aegis is a direct - if evolutionarily advanced - descendent of *TACL* (The Adventure Construction Language). With this adventure development system, you can create adventure games that incorporate graphics, animation, digitized sounds, music, and fancy screen gadgets. Of course, despite what the box blurbs say, it won't be easy. There are so many options - so many variables.

But *Visionary* will let you put together all those variables in a relatively painless way. The process is still the same as it would be if you were writing a game in 'C' or BASIC - you plot the adventure, create the sound effects, music, and graphics, and design the interface screens. Then you write the program. But instead of using a complex, high-level language like 'C' or an underpowered generic language like BASIC, you use the *Visionary* programming language, a language that is as simple in most ways as BASIC, but with powerful gaming-specific functions.

You can write your code in any text editor, but it's easiest to use the included *VED* editor, which incorporates built-in programming templates and easy access to the *Visionary* compiler. Yes, I said compiler. This is a real programming language, and the finished product is compiled into a stand-alone runtime package that can be run without *Visionary*, so you can distribute copies to others.

Functionaries

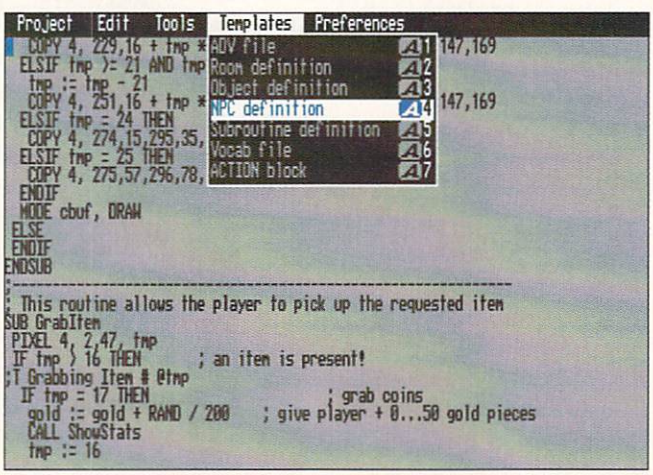
Visionary's functions are many, and they make it relatively easy to create the rooms, objects, actions, etc., which make up an adventure. But you'll have to pay careful attention to structure, and *Visionary* certainly doesn't do everything for you. I was surprised to find that a great many common housekeeping tasks, such as clearing the type-ahead buffer, allocating graphics buffers, etc., require the writing of full-fledged subroutines. It seems to me that many of these chores could have been taken care of by a double fistful of well thought-out built-in functions.

Not that there aren't a plethora of useful built-in functions. There are blit animation functions, screen fades and dissolves, sound and graphics pre-loading and unloading, a music player, and much more. Graphics and sounds are standard IFF forms, but the music format chosen was the PD *MED*, not the more familiar SMUS or *DMCS*. And ANIMs are not directly supported (though they can be called). Animation is performed by setting up your own blits, a time-consuming task at best.

End Results

The sample adventures we've seen have been impressive. They play like the real thing. If you're not daunted by a bit of hard work, *Visionary* should allow you to create adventures that will impress the most hardline gamers.

By the way, *highly* recommended for serious *Visionary* game authors is John Olsen's book *The Visionary Programmer's Handbook* (with disk), also available from OXXI.



The *VED* editor, with some of the source code for the *Dungeon Master* look-alike sample adventure *Catacombs*.

Visionary
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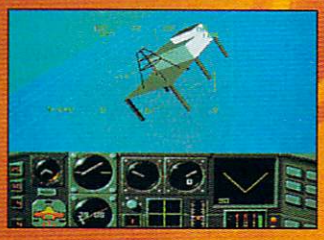

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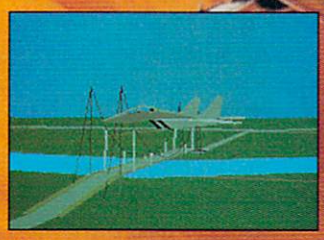

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NEWS & VIEWS

CHANGES AT AMIEXPO

There have been some organizational changes within the company that produces AmiEXPO, 'The Amiga Event.' Joseph Lowery, who was one of the original founders of the trade show, is now General Partner of the company and President of Computer Performance, Inc. Alexander Glos has left the company.

The first AmiEXPO for 1992 will be held February 14-16 aboard the Queen Mary in Long Beach, California. This will be the first show held in Southern California in about a year and a half.

SIM MAG

Shay Addams, of 'Adventure Road' and *QuestBusters* fame, has launched a new newletter called *Simulations!* Designed along the same lines as *QuestBusters*, this publication is devoted to simulations of all sorts, with an emphasis on flight and sports. The initial 16-page opus has reviews, tips, and commentary from such industry notables as Shay himself, Russ Ceccola, Bernie Yee, and Rich Heimlich. Published bi-monthly, subscriptions are $16 per year. PO Box 5845, Tucson, AZ 85703.

VIRTUAL SPECTRUM

Back in the Fall, ABC's *Primetime Live* ran a segment on virtual reality that was an eye-opening and intriguing look at the field. Among the things they showed was a virtual reality-based game developed by British company W Industries, in which two players are placed in a virtual world consisting of a central platform with four smaller platforms radiating off it and connected by steps. The idea of the game is simple combat with virtual weapons, but with the added dimension of having virtual pterodactyl-like creatures flying around, trying to snatch you. The *Primetime Live* reporter was doing fairly well against his opponent, but then a pterodactyl grabbed him and started flying up into the virtual air. The experience was too much and too real for the reporter, who tore the helmet off in a near panic. The whole thing sounds wonderful to us. Now we've learned that

The hardware for *Virtuality* - the software runs on an A3000

the game itself was developed and running on an Amiga 3000. The system used is called *Virtuality*, and Spectrum Holobyte, Horizon Entertainment (the North American distributors of *Virtuality*), and W Industries have formed a new company called Cyberstudio to develop software. Initially, *Virtuality* will be a road-show type entertainment and will be placed in selected malls around the country. Play will run about a dollar per minute, with most games lasting about three minutes. We have to remember that this is the first implementation and there will undoubtably be more permanent *Virtuality* centers opening and that the cost will come down. We can hardly wait.

TOASTER NEWS

NewTek tells us that the producers of NBC's 'Unsolved Mysteries' were so pleased with their *LightWave*-generated UFOs (the episode aired September 18, 1991) that they used the Toaster and *Lightwave* to make more UFOs which aired in a November episode.

There are also a couple of Comdex-related NewTek items. First, an 'under-$5000' IBM version of the Toaster was debuted. In reality, it's still an Amiga system, but it interfaces directly to a '286 or better PC with Windows installed. At the same show, 'Revolution,' NewTek's latest Toaster demo video, won the top spot in *Adweek's Marketing Computers*' Marcom Awards. From what we hear, the judges had never seen anything quite like it. Kudos all around.

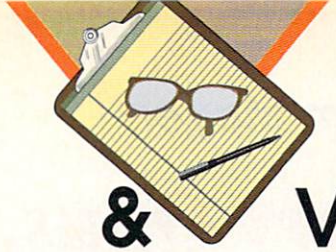
Finally, a Toaster is among the equipment taken into Biosphere 2, the sealed environmental experiment that got under way September 21 in Arizona. There are video cameras placed throughout the domes for documenting the progress of the eight inhabitants and the Toaster is being used to edit and produce documentary videos.

3 MILLION AMIGAS

It is official. Ronald B. Alexander, Commodore's Chief Financial Officer, tells us that the 3 millionth Amiga was sold in November, 1991. The significance is that the one-million mark was reached in March, 1989 (3 1/2 years after the Amiga was introduced), the two-million point in November of 1990, and it then took only one year to sell a million more. Let's hope it only takes six more months to sell the next million.

SMPTE TO UPDATE STANDARDS

In February, the Society of Motion Picture and Television Engineers is holding a one-day tutorial seminar followed by a two-day conference. The seminar, to be held Feb. 6 at the Westin St. Francis Hotel in San Francisco, is called "Computers for Video, Video For Computers." It is aimed at establishing a common ground for video and computer professionals. The conference, which follows on the 7th and 8th, is titled "Collision or Convergence: Digital Video/Audio, Computers, and Telecommunications." this all-digital theme will cover the topics of data compression, mass storage, workstations, and fiber optics, among others. A major focus of the conference will be on establishing a new standard (along



NEWS & VIEWS

with the IEEE) on scalability of high resolution images. This will enable desktop video systems to import image files from systems using different - usually higher-resolution - formats. Interested parties should call Nancy Engel, PR Coordinator for SMPTE, at 914-761-1100.

SECRETS IN 2.0

There are always secrets in any operating system, and it seems as though there are some buried in 2.0. We don't know quite what yet, though we have received a clue: "Control the alternate menus to shift into an enlightened state." What do it mean?

GOOD NEWS

Recently, the Rumor Mill had been regurgitating the ugly rumor that SAS Institute was not going to be providing any more updates for Lattice C. Coming on the heels of WordPerfect's sudden cancellation of *WordPerfect 5.0*, this was somewhat of a shock. After all, any lessening of support for *the* major Amiga development tool would have a profound impact on Amiga development as a whole.

But we checked with SAS, and the rumor is *definitely* false. Not only are they planning continuing support for Lattice C, but a SAS spokesperson told us 'we're currently planning the next update, probably sometime next year.' So much for rumors.

.info UPDATE

JUST GET MY NAME RIGHT DEPT.

✓ We have been informed by the author that the excellent freely-distributable skywatching program StarChart, mentioned in the Public Domain column in the October '91 edition of .info, is by the real-life Ray Larson, not the fictitious Roy Larsen, as we so erroneously reported. Our apologies. For those interested in the program, Ray tells us that the complete source code is available on Fish Disk #159.

VERSIONS

✓ Fairbrothers have released the Japanese edition ($129.95) of their *Audio Gallery* foreign language tutor/talking picture dictionary series. Now you can learn how to say *konnichi wa* correctly from your Amiga. The company also tells us that there was a problem running the previously released editions on an A3000, but it has been corrected. Contact Fairbrothers for more information. 5054 S. 22nd Street, Arlington, VA 22206. 703-820-1954.

✓ When Central Coast Software became a part of New Horizons, we were assured that *Quarterback*, the hard disk backup utility, would continue to be supported and updated. New Horizons has followed through with *Quarterback 5.0*. Among the new features are streaming tape support, compression, ARexx and Workbench 2.0 support (hurray!), optional password and encryption, and a redesigned user interface with a 3D look. Retail price of 5.0 is $75 and registered owners of previous versions will be notified by mail regarding upgrades. New Horizons, PO Box 164287, Austin, TX 78716. 512-328-6650.

✓ Empress Software, publishers of the Unix-based *Empress RDBMS* (Relational Database Management System) that runs under Amiga UNIX X Windows, tells us they've released a version that supports Japanese characters. It's an interesting development and may sell a few Amiga UX machines in the Far East. 6401 Golden Triangle Drive, Greenbelt, MD 20770. 301-220-1919.

✓ There's a review of Stylus' *ProVector 2.1* elsewhere in this issue, but we wanted to give you upgrade information here: registered owners of *ProVector 2.0* will need to send in their three original disks along with a check for $30. If you bought *ProVector 2.0* after August 1, 1991, the upgrade is free. For more information, contact Stylus at PO Box 1671, Ft. Collins, CO 80522. 303-484-7321.

✓ MegageM has upgraded *FractalPro*, their fractal exploration software, to version 5.0. It retains all the features of 4.0 and adds *lots* more. This new version will work with a 68881/882 coprocessor and with a 68040, claiming a two-fold speed increase over 4.0 and 35 times with the '040. That should blister some pixels. It adds ARexx support and four new formulas, including hyperbolic cosine, 'Wolf' Mandelbrot, and Julia Sets. The count range has been extended to 16384, which will allow more colors and detail for the newly added 24-bit graphic support. There's also a new menu selection for creating *VistaPro* DEM files. *FractalPro 5.0* is $149.95, 4.0 is still available for $99.95, and registered owners can upgrade for $46.50. 1903 Adria, Santa Maria, CA 93454. 805-349-1104.

MOVES

✓ Ditek International, publisher of *DynaCADD 2.0*, has moved to 2800 John Street, Unit 15, Markham ON Canada L3R 0E2. The phone numbers remain the same at 416-479-1990 voice, 416-479-1882 fax.

OOPS

✓ Oran Sands mistakenly quoted a price of $129.95 for Gold Disk's *Showmaker* in his Video column in the December issue. The correct retail price is $395. It's a good thing OJ has a day job in a hospital - he won't have to call an ambulance after we punish him.

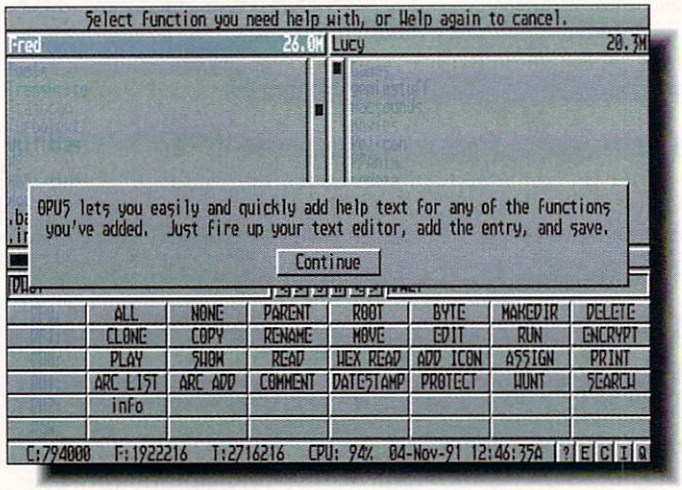
ET CETERA

✓ For a limited time, Gold Disk is offering cold, hard cash back when you buy their software. The rebates range from $5 to $30 and you can get the mail-in coupons when you purchase their titles from an Amiga dealer. Contact Gold Disk for more information. 5155 Spectrum Way, Unit 5, Mississauga, ON Canada L4W 5A1. 416-602-4000.

Productivity by Jim Meyer

Directory Opus, New ProWrite Debut in Oakland

What was the biggest hit of AmiExpo in Oakland? *Deluxe Paint IV*? OK, fair enough. How about the second biggest hit? Give yourself bonus points if you guessed *Directory Opus* by Jonathan Potter, distributed by INOVAtronics. As amazing as it might seem, in a world where directory utilities are the most popular (and prolific) public domain programs, *Directory Opus* was selling like hotcakes. I stopped by the INOVAtronics booth for a quick look, and came away a believer.



Directory Opus cheerfully offers help for a newly-created function.

Goodbye CLI

Directory Opus is billed as a 'directory utility,' but I prefer to think of it as a point-and-click data manager. This program does so many things that it seems more appropriate to describe what it *won't* do (it won't vacuum your floor) than what it does. I'll try, anyway. *Opus* comes on a single disk, with a rather brief wire-bound manual. It's fully 2.0-compatible, and the hard drive installation program works flawlessly. The minimum configuration is one megabyte, with any number of floppy or hard drives. You don't have to do much of anything to get *Opus* up and running, although you should at least glance through the manual.

Opus will open on its own screen with a double-window display, flanked by status bars and gadgets. There are 48 primary gadgets in the *Opus* display; six of these are drive gadgets, reserved for available disk drives and devices. The other 42 gadgets cover program functions. The six drive gadgets have four personalities in all; clicking on them with the right mousebutton rotates them through their four banks. Initially, these gadgets contain the names of every mounted device in your system. Like all *Opus* gadgets, though, they can be configured any way you'd like. The 42 system gadgets also have four modes of operation, but each mode is reached through a different mouse-click combination: left-button, right-button, double-click, and click-move-click, a feature unique to *Opus*.

Directory Opus
★★★★★
$59.95
INOVAtronics
8499 Greenville Ave. #209B
Dallas, TX 75231
214-340-4991

It Slices, It Dices

The operation of *Opus* is more than intuitive. Jonathan Potter seems to have taken into account every complaint anyone has ever had about a directory utility. At first blush, everything seems normal enough: you activate a window and click on a drive gadget, and the directory for that drive scrolls into the active window. That's where the fun starts. Type a single letter, and the display scrolls to the first file starting with that letter. Double-click on a file and *Opus* interrogates that file, taking appropriate action. If it's a text file, *Opus* opens a text reader and displays the file. If it's a sound file, *Opus* plays the sound. Picture file? *Opus* displays the picture. Program file? *Opus* opens a requester, allowing you to specify any arguments for the program, and then launches the program. *Opus* will also display icons, brushes and fonts, launch CANDO decks, and play ANIMs.

I suspect that modem junkies like myself are among the biggest customers for directory utilities, and *Opus* recognizes this. It has special provisions for handling archived files, and it's set up to recognize 'arc,' 'lharc,' and 'zoo' files right out of the box. (You'll need the appropriate archive programs in your c: directory, though.) If you need to recognize additional archive types, you can easily add them. I managed to add 'lz' capability without even consulting the manual. *Opus* will list the contents of an archive, dissolve it, or create it without batting an icon. The archive creation operation, in particular, demonstrates the ease that *Opus* brings to complex operations. Once you've selected your primary archiver (through the *Opus* configuration program) you simply click on the files you want to archive, specify an output device in the other window, and click on the 'ARC ADD' gadget. If you're using a recursive archiver such as zoo or lharc, you can click on directories and have their contents archived.

Have It Your Way

The extent to which *Opus* is configurable is astounding. Everything, down to the

action that *Opus* will take when you double-click on a file, can be configured. You don't need any special knowledge, either. The configuration program, like *Opus*, is mostly a point-and-click affair. The main configuration panel has gadgets for each of the eight main areas. Each of these gadgets brings up another panel. The Operation gadget, for example, brings up a panel with gadgets covering general operational details. These gadgets, which range from 'Copy' to 'Update,' all summon push-buttons which enable you to specify how the operations will work. Almost every configuration operation involves nothing more than clicking on options. When an operation requires you to supply parameters, those parameters are fully explained in the manual.

If the built-in operations of *Opus* aren't enough for you, there's the ARexx port. Just about everything that *Opus* can do can be controlled through the port, and anything that *Opus* can't do can probably be programmed through ARexx. There are a number of ARexx examples on the *Opus* disk, to get you started, and the manual does a good job of explaining the available commands.

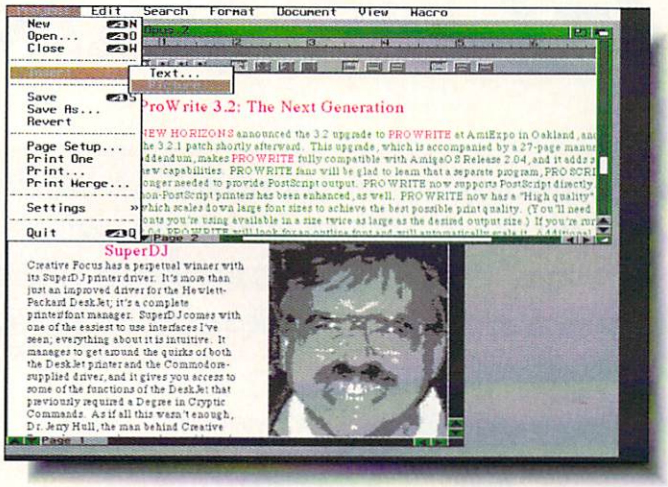
Help!

Opus is easy enough to understand, but there are times when you'll want instant help. No problem! Just click on the 'Help' icon and click on the function you need help with. *Opus* opens an informational panel with an explanation for that function. You're not limited to the available help, either. You can change what's there, and add your own help text as the need arises. The help file is a simple text file which you can edit with any editor that can save as ASCII.

Between *Directory Opus* and AmigaDOS Release 2.0, I haven't seen much of my old friend the CLI. *Opus* not only makes short shrift of the chore of file management, it makes it a pleasurable experience. Every feature of *Opus* is well thought out, and most of the operations seem to anticipate your next move. From the simplicity of copying a file to the unending configurability, *Opus* truly has it all. I wouldn't be without it.

ProWrite 3.2

New Horizons announced the 3.2 upgrade to *ProWrite* at AmiExpo in Oakland, and released the 3.2.1 patch shortly afterward. This upgrade, which is accompanied by a 27-page manual addendum, makes *ProWrite* fully compatible with AmigaDOS Release 2.04, and it adds significant new capabilities. *ProWrite* fans will be glad to learn that a separate program, *ProScript*, is no longer needed to provide PostScript output. *ProWrite* now supports PostScript directly. Output to non-PostScript printers has been enhanced, as well. *ProWrite* now has a 'High quality' print option which scales down large font sizes to achieve the best possible print quality. (You'll need to have the fonts you're using available in a size twice as large as the desired output size.) If you're running under 2.04, *ProWrite* will look for an outline font and will automatically scale it. Additional fonts, by the way, are available from New Horizons in their *ProFonts I* package.



ProWrite's "New Look" windows.

Speak To Me

ProWrite now has the ability to read your documents aloud, or to echo each letter as you type it. This feature is potentially useful for the visually impaired, but the lack of a keyboard equivalent is a serious omission. The option which echoes each character is very slow; each character has to be fed to the narrator, translated, and then spoken.

The change that you'll notice first in 3.2 is the '2.0 look.' You get this with either 1.3 or 2.0, but there are other goodies that you'll get only with 2.0. One of them is something called an 'AppIcon,' an icon which is deposited on the Workbench surface whenever you run *ProWrite*. Whenever you click *ProWrite* to the back, you can double-click on this icon to bring *ProWrite* to the front. You can also drag document icons onto the AppIcon; they will automatically be loaded into *ProWrite*. Also on the improvements list: Image handling. 3.2 more accurately maps image color to screen color, and tracks the full Amiga palette of 4,096 colors.

ARexx fans will be happy to learn that 3.2 features 23 new or improved ARexx commands, as well as improvements to the ARexx macro system. You can now pass parameters to your macros when you invoke them, and you can name your macros whatever you'd like. If you have a macro named 'ProWrite Startup' in your *ProWrite* drawer, it will be executed when you launch the program.

ProWrite 3.2 brings even more capabilities to an already outstanding program, and helps to fulfill the promise of James Bayless, the program's author, to bring *ProWrite* 'upscale.' I'd still like to see support for the Amiga clipboard, but I'm willing to give New Horizons one more chance on that subject. Meanwhile, *ProWrite* just gets better and better.

ProWrite 3.2.1

★★★★✚

$175.00

New Horizons
206 Wild Basin Rd. Ste. 109
Austin TX 78746
512-328-6650

CD-I versus CDTV

CDTV may someday be remembered primarily as the competing product that caused CD-I to be released in a timely fashion at a reasonable price. You'll probably find it in the history books in the same section as Beta VCRs, Tucker automobiles, and 8-track tapes.

by Tom Malcom and Mark R. Brown

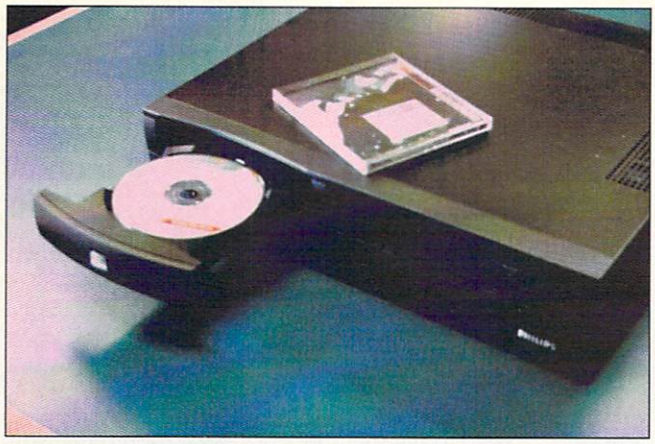
Botticelli's *Birth of Venus* as seen on CD-I (left) and Amiga (right).

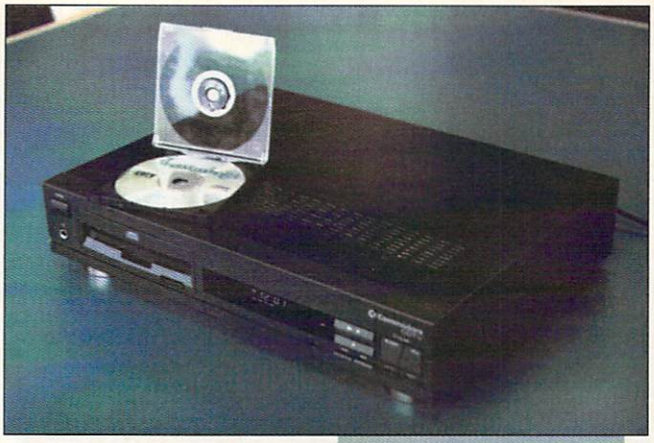
Philips sent us a CD-I unit for a head-to-head comparison with CDTV. We were impressed not just with the CD-I unit itself but with the ambiance - the 'feeling' - which accompanies the whole CD-I genre.

Though the technology is roughly comparable, with each player having some advantages and disadvantages when compared to the other, CD-I has many non-technical advantages over CDTV: good PR and marketing, an entirely new type of software, and a firm grasp of what consumers will buy. The most important of these is marketing. CD-I has the might of Philips behind it. Don't forget for a moment that Philips is the largest electronics firm in the world. Bigger than Sony, bigger than Panasonic, and whole worlds bigger than Commodore. Philips is the company that introduced cassette audio tape to the world when 8-Track cartridges were selling well, and then threw its support behind JVC's VHS technology after Sony already had a foothold in the market with the Beta videotape format. If you have any lingering doubts about Philips' influence, go to a video store and try renting a Beta movie. This kind of marketing clout is now, unfortunately, directed right at CDTV. And the past has shown that the consumer market cannot and will not support more than one format in any entertainment medium.

We have to reiterate that CDTV is, in some respects, technologically superior to CD-I. We genuinely like CDTV and enjoy playing with it. We like it because it's familiar, because it's an Amiga, and because it has tremendous potential. It handles sound in a much more versatile way than CD-I and can draw on the custom Amiga chips for fast animation. And you can expand it to create a full-blown Amiga computer.

There's a computer somewhere inside the CD-I box, but it's hidden behind slick packaging and software that looks like TV programming. The simpler design also means that the machine is more transparent to the user; it doesn't get in the way of the software. There are no back-panel connectors for expanding CD-I into a real computer. Where CDTV is an interactive computer box with CD audio, CD-I is digital interactive television, a hybrid of real-world video, CD audio, and Nintendo.





CD-I doesn't require a disc caddy, giving it an edge over CDTV.

Three Strikes

Besides the Philips name, there are three main things that give CD-I the clear edge in the interactive media battle: the display, the software, and the standard.

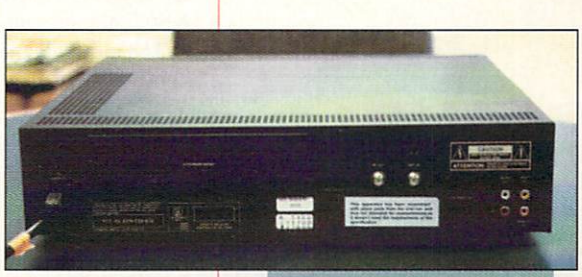
CDTV is hardly out of the gate and it's already going to have to play catch-up with its video display, which it will most likely do - and do very nicely - by adding a plug-in *DCTV* board. But the units shipping now have only composite and RGB video displays, with a range of colors limited by what the Amiga inside can produce. CD-I, on the other hand, has composite and S-VHS output, and its display is in a glorious 16 million colors. It is beautiful, and it is better than any computer display currently available.

And the software isn't like the software we're used to seeing. It is highly commercial, very professional, and standard-setting. Its philosophical origins are in television programming, not computer software.

The final strike against CDTV is its proprietary nature. It is built around an Amiga and, while Commodore does offer to license the technology, there hasn't been a great rush of other manufacturers wanting to come out with CDTV-compatible units. CD-I, on the other hand, isn't a specific machine but a standard which was set by an international committee led by Philips and Sony. Within a year, we will be seeing CD-I machines from Sony, Matsushita, Yamaha, Grundig, Panasonic, Sanyo, and Pioneer. You can count on there being many more.

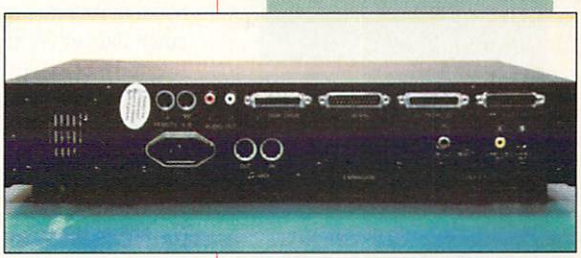
The Specs

CD-I is built around a Motorola 68070 running at 8MHz (very comparable to CDTV's 7.18 MHz 68000) and comes with one megabyte of RAM standard (the same as CDTV). The machine also has an 8K area of non-volatile RAM, which can be used for storing information about your CDs, though there will certainly be other uses for it. Standard screen resolutions are 384x240 in lo-res, while high resolution is 768x480, the same as severe overscan on CDTV. There are also seven levels of graphics, ranging from Delta YUV (used for photographic-quality images) to much lower Color Lookup Table schemes used for animation. These lower resolution animations look much like Amiga screens, but support 64, 128, or 256 colors out of a 16 million color palette. CD-I also includes a Photo CD standard which was developed jointly by Philips and Kodak for storing photos on CDs. A primary example of photographic-quality images can be found on *Time-Life's 35mm Photography* disc. The technology is also used to great advantage on *The Renaissance of Florence*. The image quality is as good or better than anything you'll see on cable TV.

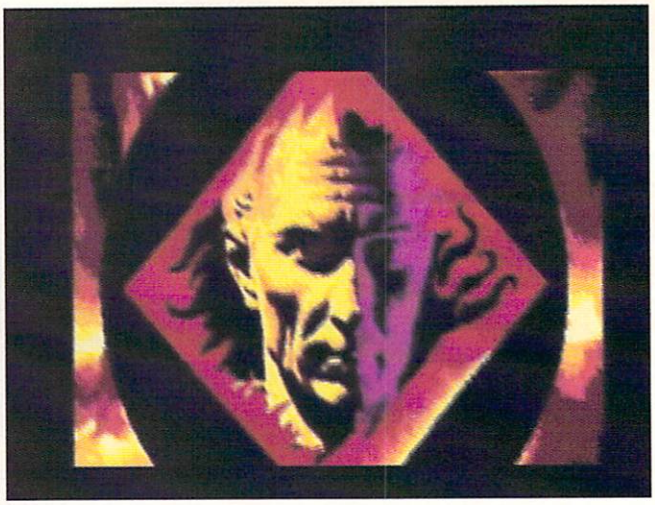


CD-I (above) isn't meant to be turned into a computer, CDTV (below) can be.

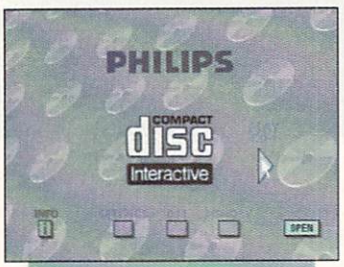
CD-I's digital CD audio is almost exactly comparable to CDTV's. CD-I has four levels of audio, used according to what's required by the particular application. These range from full 44Khz CD-audio quality down to 8.5 KHz, comparable to AM radio. In contrast to CDTV, what CD-I *doesn't* have is the capability to generate internal sounds; everything you hear has to be pulled off the CD.



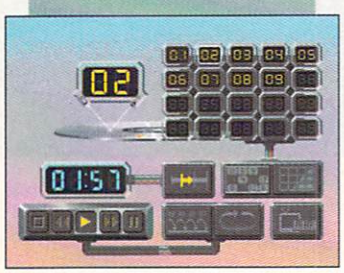
The philosophical difference between CD-I and CDTV is revealed by a look at the back of the box. CD-I doesn't have the computer ports CDTV does. Instead, what you'll find are RCA plugs for audio and video, an S-VHS out port, antenna in/RF out F-type connectors, and a big covered expansion port which is designed to accept a not-yet-available full-motion video expansion cartridge. Full-motion, full-screen video is something neither CD-I nor CDTV offer as yet, though both are planning to make it available



The same CD+G disk viewed on CD-I (left) and CDTV. The annoying white border on CD-I is always there, though the control panel can be turned off.



The control panels for both machines.



sometime this year. Another difference is CD-I's lack of the MIDI port CDTV sports, though for most people, it won't be missed. There are three additional ports on the CD-I box which we haven't been able to get definitive answers about. There's one on the front for additional input. Philips tells us that it can accept a keyboard, but that the keyboards are for developers only. There's a similar DIN port on the back of the machine, along with an RCA-type plug for a wired remote. What these are to be used for isn't yet clear, but the possibilities are intriguing.

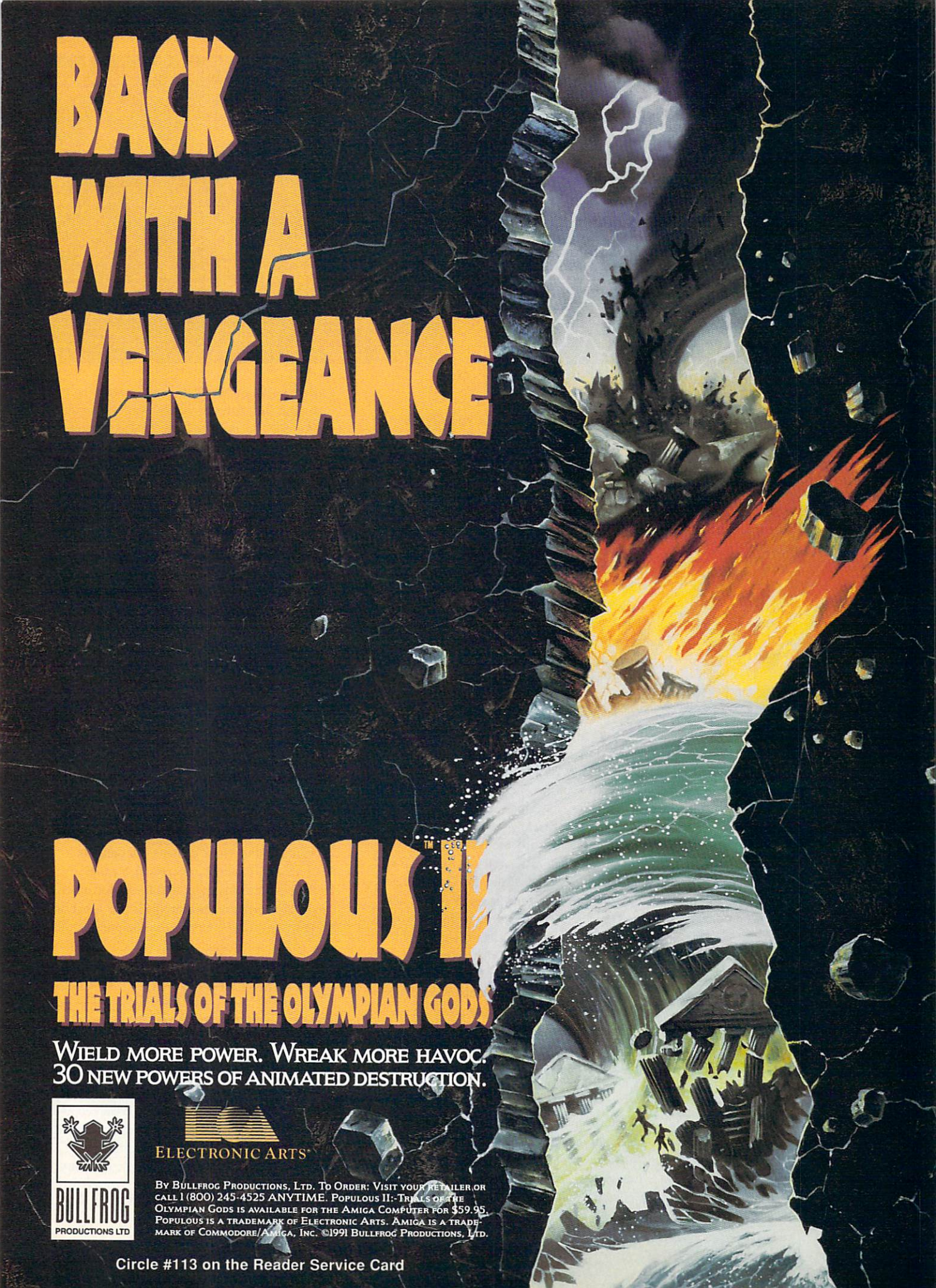
The most obvious physical difference between CD-I and CDTV, though, is immediately apparent: CD-I doesn't require a disc caddy. Consumer acceptance is what makes or breaks a technology, and few consumers are going to put up with even minor inconveniences. It may be a small point, but the disc caddy issue is a telling one. It makes CDTV look awkward and harder to use.

CD-I is a mass-market technology. Commodore has always played down the fact that there's an Amiga inside the CDTV box and that it can be turned into a computer with the addition of a keyboard and external disk drive. Nevertheless, CDTV is essentially a computer with a CD-ROM drive. CD-I, on the other hand, makes no pretense of being a home computer and isn't designed to be turned into one. It is meant to sit in a home entertainment center along with your VCR, TV, tuner, and cassette tape deck. Unless you're particularly fond of your current CD player, when you buy a CD-I unit you might as well get rid of it. Like CDTV, CD-I will play standard audio CDs and CD+G disks. There is a definite shortcoming with CD-I's CD+G graphics, though: the CD-I machine puts a white border around the main graphic screen and it's extremely distracting. CDTV is much more aesthetically pleasing - it changes the border to match the background of the screen.

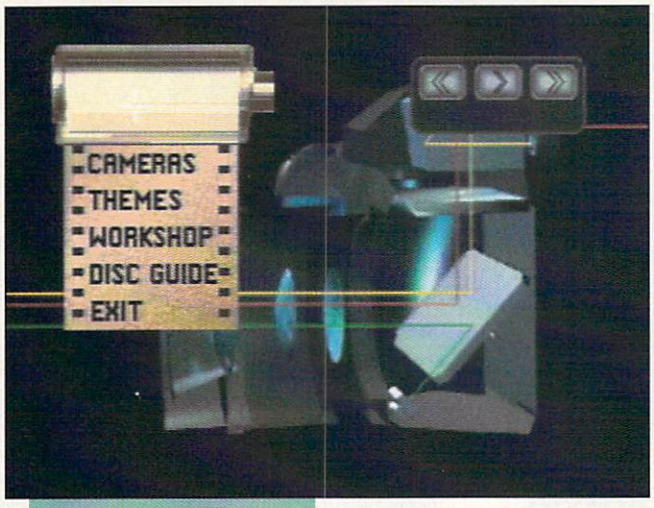
Control

It's ironic that Commodore chose a Nintendo-style controller for CDTV, while CD-I employs a much more computer-like joystick-based controller. The controller for CD-I is much simpler than CDTV's. It has only twelve buttons and most of those are controls for playing conventional audio CDs. The main control is a little thumbstick, a miniature joystick that is equally easy to use right- or left-handed (something CDTV didn't consider). Around it are two sets of action buttons; the two on top are comparable to CDTV's 'A' button and the two on the bottom are the equivalent of the 'B' button. The tiny joystick, with its comfortably wide pad, requires much less effort to use than the directional buttons of CDTV's remote. The biggest difference, of course, is that CD-I can be operated with one hand, while CDTV takes two. Besides the display, the controller is what is going to make the biggest impression on the consumer. Couch potatoes will certainly opt for a controller they can lie on the sofa and point with one hand instead of having to sit up and labor over something with both hands. Parents, too, will quickly realize the CD-I controller is far easier for small kids to operate, even though the CDTV controller more closely resembles the one for Nintendo.

Moving the on-screen pointer takes a little getting used to. It is on the sluggish side and it's sometimes difficult to position it precisely, especially in small areas; it's reminiscent of using a joystick on a C64. However, the control is perfectly adequate and the response to commands seems considerably faster than CDTV. Whether this is because of faster access times or simply better organization on the CDs, we're not sure. This could be a problem in bringing high-speed arcade games to CD-I, though we speculate that a wired joystick will probably hit the market quickly.



Circle #113 on the Reader Service Card



Comparing interfaces: the slick *Time-Life's 35mm Photography* vs. the clumsier *World Vista Atlas.*

Mother Goose Hidden Pictures and *ABC Sports Palm Springs Open.*

Software

If CD-I software had to be described in a single word, that word would be 'Professional.' When CDTV was released, it had a large pool of Amiga software to draw on, and the first titles had much of the look of the Amiga. CD-I, on the other hand, had nothing to draw on, and the first batch of software is much better suited to the machine than most of CDTV's. It's easier to use, infinitely more attractive, and above all, has the look of a big budget and high production values. Where CDTV software tends to operate more like computer programs adapted to work without a keyboard, CD-I software is designed from the start to require less work to accomplish its aims.

The software initially released for CD-I (there are about 40 titles) is astonishing. It ranges from the kidstuff of *Cartoon Jukebox* to the sublime *Renaissance of Florence*. The titles fall into five basic categories: Kidware, Reference & How To, Games, Music, and Multimedia Extravaganzas.

The children's software is the best we've ever seen. *A Visit to Sesame Street* is an interactive visit to Bert & Ernie, the Count, Big Bird, and the rest of the gang, all drawn with great skill and speaking with their own voices. Another standout in the category is *Mother Goose Hidden Pictures*, which combines songs with still images of classic Mother Goose illustrations and then adds a hidden picture game. The objects to be found in the game are hidden in black and white line drawings, but once all three objects are found, the drawing fades to full color and goes through a short animation. Kids will love it almost as much as their parents.

Reference works are the weakest part of the CD-I software lineup so far. There's no encyclopedia available yet, nor is there a dictionary. You can be certain that American Interactive Media, the software production company started by Philips and Polygram, is working on them, but such titles probably won't be on the market for a while. The How-To aspect, however, has one shining example: *Time-Life's 35mm Photography*, a distillation of their immensely popular series of books. It's a paradigm of how to do a How-To, blending general information with interactive lessons. For example, you can adjust a simulated camera's settings, snap a picture, and instantly see how the photo would turn out in the real world.

The music discs coming out for CD-I are something entirely new. What's being done is best described with an example. *Louis Armstrong - An American Songbook* starts with a screen listing the cuts on the disc, which can be played and programmed simply by clicking on the titles. To this basic function are added not just a biography (complete with photos and recorded commentary) of Armstrong, but also of some of the songwriters, including George Gershwin, Cole Porter, and Richard Rogers. Song lyrics can be scrolled up the screen, but it doesn't stop there; lines within the lyrics can be clicked on and the music will immediately go to that point. There's also a discography with images of album covers which can be clicked on to bring up more information about them. One look told us that this is the direction recorded music is going to go. The price of this disc is also surprising - it retails for $17.98, about the same as a conventional CD.

The only full-fledged game we've seen for CD-I is *ABC Sports: The Palm Springs Open*, a golf game that is going to redefine games altogether. It uses photographic-quality images of real golf courses and places an animated, digitized player in the scene. During the play, usually after a particularly good or especially bad shot, a small window will pop up onscreen and play what looks like a real-time video segment. Before and after each shot, appropriate recorded commentary from a couple of snotty

continued on page 64 . . .

Underground Worlds, Classical Worlds, and Other Worlds

I seem to have developed a serious case of game build-up on and around my desk. It's so bad I'm starting to fear for my safety. The things have piled up everywhere and no amount of cleanser or vacuuming has any effect, so I suppose I'll have to review them to get them out of here and make room for more.

Black Crypt, a first effort from Raven Software, gives dungeon games a good name.

BLACK CRYPT

★★★★★

Raven Software/Electronic Arts
1450 Fashion Island Blvd.
San Mateo, CA 94404
415-571-7171

Dungeon games have become nearly as common as sand in the desert, and there's usually not much to distinguish one from the others in the wasteland. *Black Crypt* is an oasis in a Sahara of look-alike dungeon games.

There are three main things I look for in a five-star game: quality, innovation, and programming skill. A game doesn't necessarily have to have all three, and *Black Crypt* doesn't show much innovation, but the quality and consummate programming artistry make it the best of the genre to date. *Black Crypt* is to *Dungeon Master* what *Deluxe Paint IV* is to *Deluxe Paint I*: more of the same, but whole orders of magnitude better.

The artwork in *Black Crypt* is some of the best I've seen in any game. The dungeons are highly detailed; there aren't just walls and doors, but niches, pillars, and other architectural features that are lavished with sculptural effects. The sound effects are appropriate and they're not overdone, though I think there could have been a few more just for atmosphere.

Above all, *Black Crypt* is playable. I don't like the setup process, but I don't like setup processes in general. Role-playing games are usually the worst offenders, and *Black Crypt* is no better and no worse than most of them, though I've been carping about having to have a formatted disk ready to receive the characters and saved games. Why can't games be smart enough to format their own disks? Allocating points to the characters various aspects has become tiresome beyond belief and while it's relatively painless in *Black Crypt*, it's past time to do away with such outdated notions as character charisma, stamina, and so on. The results are generally the same for each class of character anyway, so why not just make the whole thing invisible to the player? The same applies to hit points. They may be the only way to keep track of what's going on when playing dungeon games on paper, but this is a computer game and the computer should be used to take care of these tedious details. To *Black Crypt*'s credit, the hit points are almost, but not quite, invisible. I just want to see them eliminated altogether. With that little tirade out of my system (I feel much better, thank you), *Black Crypt* has the smoothest mechanics of any dungeon game I've seen. Using sliding panels, movement arrows, instantaneously accessible inventory screens, and sensible controls, the interface became second-nature to me within a few minutes.

The designers of *Black Crypt* have a good grasp of how to draw a player into the game. There's time at the beginning to get the hang of how things and to run around finding the stuff lying around that you'll need to make your quest successful. Too many designers of games in this genre seem to think the only way to start one is by killing the player off in the first ten seconds. *Black Crypt*, on the other hand, respects the player, taking the attitude that adventuring should be as much (or more) exploration and puzzle-solving than monsters and mayhem. The monsters, which are conceived with more imagination than usual for this type of game, start off easy and get progressively more difficult. That's as it should be and it shows a healthy respect for the player. Fanatical FRPGers will probably think *Black Crypt* is too easy, but for the rest of the gaming world, it's just right.

Black Crypt is the first game developed by Raven Software. Given the high level of achievement it represents, I can hardly imagine what they'll come up with in the future. If you're looking for some new entertainment in your life, look no further than *Black Crypt*.

Incredible	Very Good	Average	Poor	Drek
★★★★★	★★★★	★★★	★★	★

NEBULUS 2: POGO A GOGO

★★★★✚

21st Century Entertainment
56B Milton Park, Abingdon
Oxfordshire OX14 4RX
England
0235 832939

Proving that it is possible for sequels to surpass the originals, *Nebulus 2* is the follow-up to *Tower Toppler*, as it was called in the U.S when it was released here a few years ago by US Gold. *Nebulus 2* is classic British arcade gaming complete with maddeningly difficult gameplay and graphical puzzles that will leave you dreaming about solutions and then leaping out of bed at 3 AM to try them. It's that kind of game.

The game is played on a series of rotating towers inhabited by various creatures (none of which are at all helpful) and made difficult by fiendish and clever traps. There are two types of towers, Up and Down, and while you can choose to play only one type or the other, it's more fun to alternate. The Up towers are more difficult, I found, even though all you must do is get to the top. The Down towers are slightly easier, but have the added difficulty of requiring you to cover at least 85% of their platforms, clearing them ("repairing", as the manual states) of some icky green stuff.

In typical British fashion, games can only be saved after a certain number of towers have been completed. I don't know how many; I haven't made it far enough to find out. After three evenings of intense play, I made it only to the bottom of the second tower. This game is *hard*. If the creatures and traps weren't enough, there's also a time limit. Everything must be done precisely, which is also the game's shortcoming; since everything happens the same way each time you play, there's no incentive to come back and replay a level after you've figured it out.

The small-scale graphics are a marvel of drawing and animation, with a fine eye for detail. The sound effects are perfect and add immensely to the the overall effect. If you've been looking for a new arcade game to get hooked on, you won't go wrong with *Nebulus 2*.

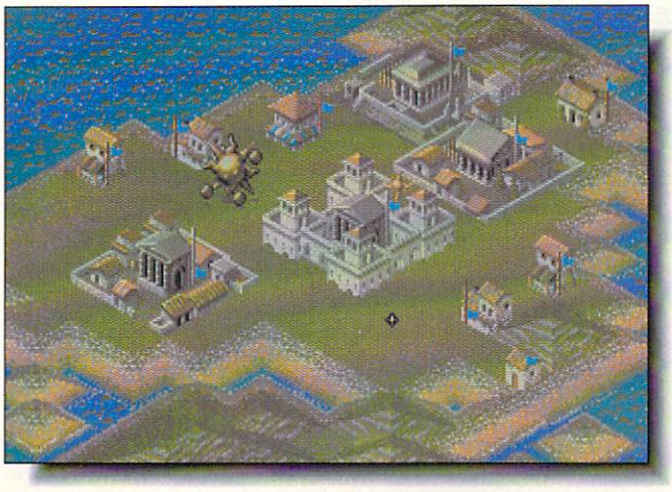
The main control screen for *Populous II* - note the new icons. The amphitheatre is used as a status display.

POPULOUS II

Preview

Electronic Arts
1450 Fashion Island Blvd.
San Mateo, CA 94404
415-571-7171

Bullfrog has done it again. Peter Molyneux and company have taken what was already one of the best computer entertainments ever done and raised it to an even higher level. Building on *Populous* and *Power Monger*, they've set *Populous II* in the realm of classic Greek myth, where gods are gods and mortals are their playthings. I've been playing an alpha version without benefit of documentation, but among the new features I've been able to find are a couple of new disasters, including fire pillars and tornados. Probably the most notable change, though, is the addition of a full-screen display. The main screen still looks and works pretty much the same, with an isometric view of the action surrounded by icons. These icons have been changed considerably, with some of them popping up other sets of subicons. I haven't even begun to figure all of them out yet. The play is essentially the same as in the original, though it seems both more streamlined and more detailed. I can hardly wait to get my hands on the release version, which is scheduled to be in the stores by the time you read this. Look for a full review then.



Populous II expanded to a full screen. It can be scrolled just like the smaller one.

ARACHNOPHOBIA

★★★

DICK TRACY

★★★

Walt Disney Computer Software
500 S. Buena Vista
Burbank, CA 91521
818-567-5360

Both of these Disney games fall into the Too Little, Too Late category. The movies they were based on have already come and gone even on cable, the IBM versions of the games have been on the shelves for at least a year and are surely headed for the remainder bins. I love most everything

Scene from the third level in Psygnosis' actioner, *Barbarian II.*

Disney does but even if they had been released simultaneously with the movies, that still wouldn't have made either one a good game.

Arachnophobia is marginally the better of the two, putting you in the role of Delbert McClintock and arming you with a sprayer and bug bombs. You're then turned loose in a spider-infested neighborhood to wage arachno-cide on the poisonous creatures.

Dick Tracy uses appropriately cartoonish graphics in places and they're well done, but the game has technical problems with interminable disk loads and too much swapping. It can be installed on a hard drive and that's the only way it's remotely playable. The game itself is a ho-hum mixture of car-chasing through city streets, questioning suspects, and gathering evidence. It's all done with little style and less playability.

The problem with both games is their mediocrity. There's no innovation, no sense of the cinematic that made the movies worth seeing, and their intrinsic shallowness is apparent after only a few minutes of play. There's nothing interesting enough in either one to invite another play session. I wish it were otherwise.

BARBARIAN II

★★★★✚

Psygnosis
29 Saint Mary's Court
Brookline, MA 02146
617-731-3553

We all loved *Barbarian* and played it until our fingers couldn't hold a joystick any more. It was one of the first real arcade games done for the Amiga and we were justifiably impressed. Psygnosis has learned a lot since those early days and it shows in *Barbarian II*. It doesn't have much in common with the original except for that lovable, overmuscled idiot Hegor. He's not too bright (at least the way I play the game), but he can take punishment that would drop a mere human and keep on fighting. There's a plot in the game, of course, but it really doesn't matter. As with most Psygnosis games, the purpose is in the playing.

The graphics are typically Psygnosis, imaginative, perfectly drawn, and animated with panache. The backgrounds use two-layer parallax scrolling and are equally well-drawn. The play reminds me of nothing so much as *Baal*, another of Psygnosis' titles which was released a couple of years ago. It consists mostly of battling your way past all sorts of bad guys and evil creatures. The first section is set in a forest, the second in underground caverns, and the third in a particularly well-drawn town. I haven't made it any further yet, but this is the kind of game I can't let sit on the shelf until I've finished it.

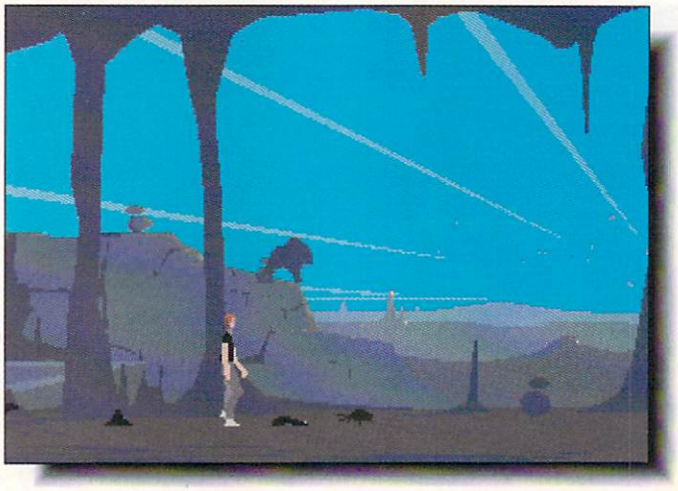
Psygnosis has come a long way in player conveniences since the early days of heavy disk protection and unsavable games, but *Barbarian II* seems to take a backward step. It does load most of itself into RAM (and looks for expanded memory), it allows for ten saved game positions, and you can turn off the ending sequence when you're killed off. The game even recognizes DF1: when loading, but after that, you have to swap a game disk and your save disk in and out of DF0:. There's absolutely no reason for it, and I thought Psygnosis knew better. Another minor annoyance is that while you can save a game at any time, you can load a game only on the title screen. These are minor quibbles, though, and if you're a fan of arcade action games, don't let them put you off. *Barbarian II* is fine, fine stuff.

OUT OF THIS WORLD

Preview

Interplay
3710 S. Susan
Santa Ana, CA 92704
714-545-9001

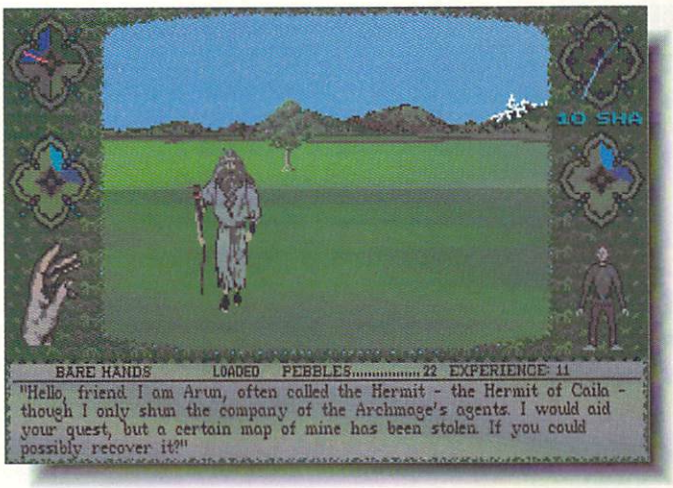
My socks are still embedded in the plaster across the room and I'm blaming any structural damage to the building on Interplay's newest, *Out of this World*. Polygon graphic games have been around for a long time, but this is the first significant evolutionary step I've seen in them since the technology was developed for flight simulators. Taking that idea and applying it to an animated adventure has been tried before, but usually with pedestrian results. Interplay, on the other hand, has come up with something entirely new. *Out of this World* adds new dimensions of detail, pours in



Interplay's *Out of this World* is just that.

cinematic techniques that Hollywood would be proud of, and makes the whole thing move with effortless speed. The point that needs to be made about the look of *Out of this World* is that it comes across more as a graphic style than as a limitation of the polygon graphics it uses.

The plot, which is laid out in an extraordinarily movie-like intro, puts you in the role of a scientist working on nuclear fission experiments. About the time you start the machine going, a bolt of lightning hits, propelling you into another dimension. We've seen this sort of thing before, but the handling of it in *Out of this World* is, pardon me, out of this world.



Early on in Readysoft's *Sleeping Gods Lie*. The figure in the foreground is a scaled bitmap.

SLEEPING GODS LIE

★★★★✚

Readysoft
30 Wertheim Court, Unit 2
Richmond Hill, ON Canada L4B 1B9
416-731-4175

Every time I boot this game, and I've been booting it a lot lately, I spend the next three hours wondering why I spend so much time with it. *SGL* is a British import, developed by Empire and released in North America by Readysoft. The game itself is a hybrid of arcade and fantasy role-playing. It's your standard quest, with princes, hermits, crowns, and assorted monsters. What is different about *SGL* is its combination polygon and scaled bitmap graphics.

Using only a mouse for movement, you can wander freely around the landscapes. All the while, there are other creatures, friendly and otherwise, wandering around. There are also incidental graphics such as trees, plants, rocks, and so on. This is a first-person world, which means that as you approach something, it becomes larger; move away and it gets smaller. Because these objects are scaled (and appropriately animated) bitmaps, they have much more detail than you would ordinarily see in a game of this type. The technique is very interesting, and while it works quite well, it isn't entirely successful. Objects have a tendency to pixelize when you get very close to them, and some things are a little difficult to recognize from some angles. The creatures you encounter are independent, meaning that they, too, move freely and are as likely to run away as they are to attack you, and they sometimes seem to get stuck in places. You must also be very careful to determine if a creature is friendly or not - kill the wrong one and you'll have to start over.

Movement is very smooth and easy to work: move the pointer to the top of the screen and you go forward, to the side and you turn. The play is oriented around finding objects and solving puzzles, and unlimited games can be saved so you can try different things. It's fairly easy, making the game suitable for adventuring beginners, but it's different enough that it will hold the attention of seasoned gamers, too. *Sleeping Gods Lie* could have used some more polish, but it's one of the most unusual and playable adventures I've been on in a long time.

SPACEWRECKED

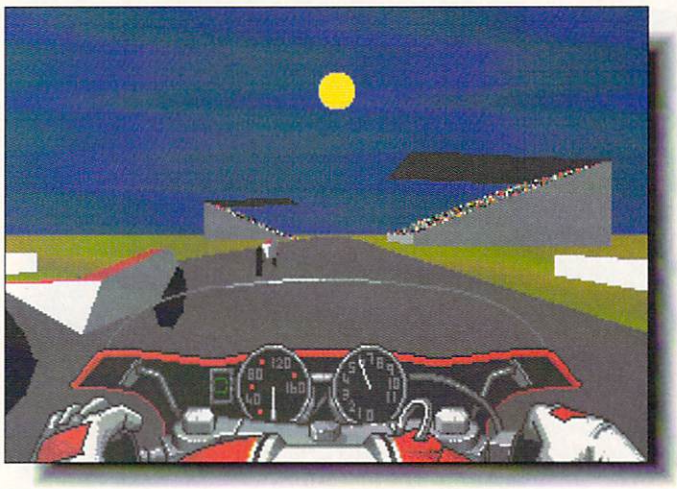
★★★★

Gremlin/Konami
900 Deerfield Parkway
Buffalo Grove, IL 60089
708-215-5100

If you liked Accolade's *Day of the Viper*, you'll love *Spacewrecked*. The graphics are better, the play even more detailed and frantic. The object of the game is to rescue what's left of the crew of a fleet of spaceships from a biological survey mission. The ships were taken over by escaped alien creatures and it's your job to subdue them and repair the ships. On your side, you have a variety of weapons, six programmable robots, and your wits.

Spacewrecked is all mouse-driven with simple, intuitive control that doesn't get in the way of playing the game. The game has auto-mapping to make your explorations less confusing and getting around is accomplished by clicking directional arrows. There are plenty of useful objects lying around, and managing them is an easy matter of clicking them into your inventory. The graphics are in the middle range, with plenty of detail and a slightly cartoonish style. The programmable robots add considerably to the depth of the game and I like the idea of having to repair the ships

Doing a little gardening in Konami's *Spacewrecked*.



I could almost feel the bugs hitting my teeth in *Team Suzuki.*

rather than blowing them up. The play's the thing here and if you're looking for a sci-fi action adventure with a high attention-keeping factor, look no further than *Spacewrecked.*

TEAM SUZUKI

★★★★

Konami
900 Deerfield Parkway
Buffalo Grove, IL 60089
708-215-5100

Solid-modeled racing games come and polygon graphic racing games go, usually without making much of an impression. They're not one of my favorite types of games and that's usually because they're so difficult to control. Therefore, I was surprised that within about a half-hour, I was racing *Team Suzuki* like I'd been born to it. Whether the control is better or whether my touch has improved I can't speculate on, but if you like motorcycles (and a computer-simulated cycle is the only one you'll ever see me on) there are thrills galore in *Team Suzuki*. The game gives you a choice of 32 Grand Prix tracks from all over the world and there are three types of motorcycles to choose from, 125cc, 250cc, and 500cc. You can drive either with the mouse or a joystick (I like the mouse best), and while there are a number of different keyboard commands for changing your view (including zoom, backward, etc.), they don't get in the way of your racing. That's what makes *Team Suzuki* a good game: it keeps the racing at the forefront without encumbering it with a bunch of unnecessary frills. The frills are certainly there, but they stay sensibly in the background until you want them. Pump up your adrenalin a little, give *Team Suzuki* a ride.

CYBERBLAST

★★★✚

Innerprise
128 Cockeysville Road
Hunt Valley, MD 21030
301-785-2266

If it weren't for the name on the box, I'd swear this was *Gauntlet III*. It's the same type of arcade fare that has you running a little player around a series of screens, picking up objects, weapons, miscellaneous treasure, and attempting to avoid being touched by the multitude of nasties that are all coming after you.

There is absolutely nothing in this game that hasn't been done a few hundred times before, and even so, that didn't stop me from playing it for longer than I should. (That probably says less about the game than it says about compulsive behavior.) The graphics are typical of the genre, small-scale and animated. The sound and music are quite good and very listenable. Play is also about standard for the type of game; I never could outrun or outwit the hordes of enemies, but if I could, I wouldn't stick as many quarters in the machine, either.

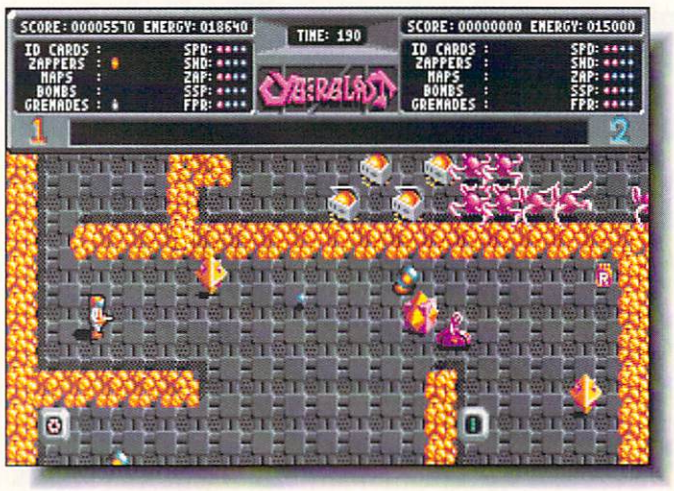
The Amiga version of *Cyberblast* is obviously only a stop on the way to another platform, most likely the Sega Genesis. It's nothing new, but certainly worth giving some playtime to.

TRUMP CASTLE II

★★★

Capstone
14202 SW 136th Street
Miami, FL 33186
305-252-9040

Trump Castle would be broke by now (and it may be, what with The Donald's financial woes) if it ran its games at the speed this simulation does. The layout of the game uses digitized pictures of the Atlantic City casino and lets you click on different locations in the main lobby for the different games. It includes baccarat, blackjack, craps, roulette, video poker, and slot machines. None of them are any better than most PD versions and some are worse. The animations take an interesting approach, using digitized photos of croupiers and dealers, but they only use about three frames and come across as amateurish. If you're a fanatical Donald Trump fan (is there any such thing?), take a look. Otherwise, you'll only be frustrated by *Trump Castle II*'s terminal slowness.



Doing battle with the endless hordes of nasties in Innerprise's *Cyberblast.*

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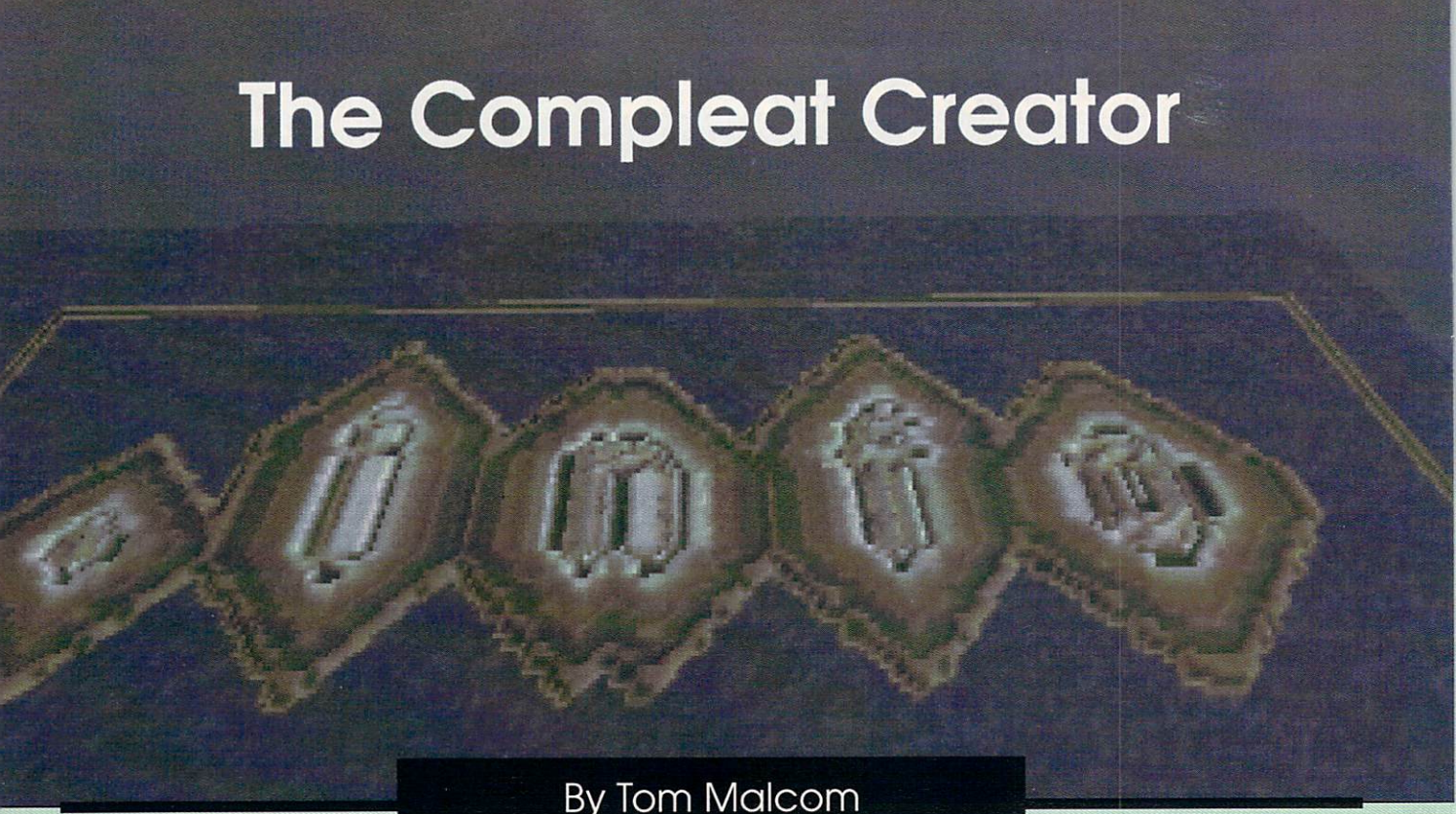
The Compleat Creator



By Tom Malcom

Let's get the obvious question out of the way first:

What possible use is a fractal landscape maker? There are several answers, ranging from the flippant "To give you someplace to go besides my house" to the aesthetic "For its own sake" to the practical "Because you're a movie (or game or multimedia...) producer looking to save a few bucks by not having to go out into the wild to photograph real locations." I like the second answer best, but then I consider all software to be entertainment and - with some exceptions - art. *VistaPro* also has serious scientific uses. The images sent back from the recent Venus probe were rendered with similar software.

VistaPro has come a long way since its inception as a rather exotic toy for making pretty pictures that looked something like real landscapes. It is a product that has created its own market, something we didn't know could be useful until we used it. I've been a fan of *VistaPro* since I first laid a mouse on it, and I frequently set my machine to rendering landscapes when it's not doing anything else. What prompted this review (besides it being long overdue) is that there's a new 2.0 version of *VistaPro* on the horizon. It's a major revision of the five-star v1.02 and, along with two new auxiliary utilities, adds depth and functionality that must be seen to be believed.

VistaPro 2.0 retains the familiar look of earlier versions, but there are significant changes. Most of what I'll be describing here is from this new revision, which should be available by the time this hits print. Before going any further, I need to mention system requirements. If you're going to do any serious fractal work, an accelerated machine is mandatory. Unless you're willing to grow old waiting for screens to render, upgrade to an '030 machine. The *VistaPro* package contains versions for both stock 68000 machines and those equipped with a math coprocessor, but it has gotten to the point that it just isn't practical any longer to use it on an unaccelerated computer. I would also recommend a display enhancer; the initial release of *VistaPro* 2.0 will directly support Digital Creations' *DCTV* and Impulse's *Firecracker*. To get the full benefit of the 24-bit graphics, you'll need something to see them with. If you're planning to do any animations - and that's obviously the primary use for *VistaPro* - you're going to need massive amounts of storage. I'd recommend an erasable optical drive or some other form of removable media. Another option might be using videotape as storage; since you're most likely going to want to transfer your animations to video anyway, outputting frames directly to tape is a logical move. If your aim is to use *VistaPro*'s landscapes as backgrounds, you can simply genlock other graphics over them.

The Creation

VistaPro can generate landscapes in two ways. The first is based on seed numbers, which you can enter yourself or have the software pick at random. Either way, the terrain looks realistic and if you don't like it, it's an easy matter to make some more. There are several parameters that can be set if you're trying for a particular type of terrain. There's a button for choosing whether the general

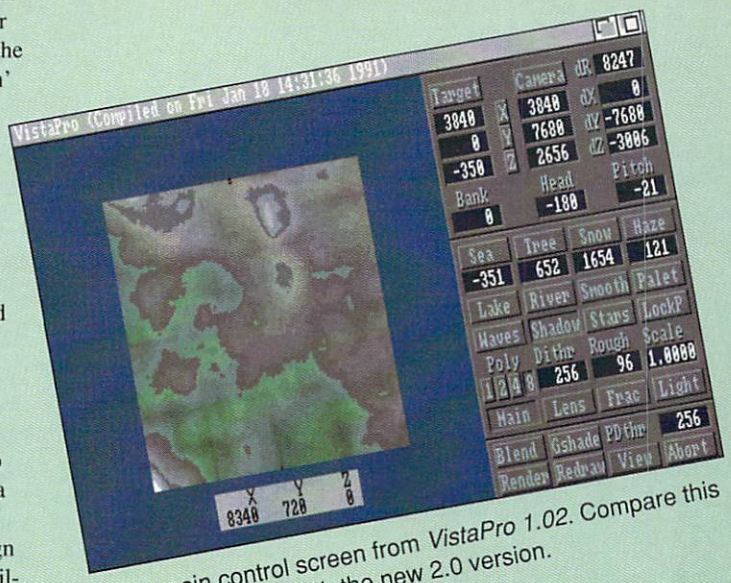
layout is an island or solid landmass, and a set of buttons for determining whether there's a central peak, evenly distributed hills, or something in between. The overall smoothness or roughness of the terrain can be tweaked and there's a new function called 'Stretch' which has the effect of exaggerating the features of the terrain, making peaks higher and craggier and valleys deeper. Unfortunately, there's no way to undo what you've done, so if you have a layout you like, be sure to save it before doing any serious terraforming. Lakes and rivers can be placed wherever you want just by clicking.

The second way to create landscapes is by loading in Digital Elevation Model (DEM) data. Originally, this option was limited to sets of auxiliary scenery disks published by Virtual Reality Labs, but recent months have brought a couple of new ways to create and import data. The data disks from VRL are important because they offer real-world (and other-world) data to create accurate renderings of places ranging from the Grand Canyon to Mt. St. Helens to Mars and the Moon. VRL also tells us there's a good chance they'll be able to release data from the Magellan probe. If real data isn't what you want, it's also possible to design landscapes from scratch using *Terraform*, a slick, stand-alone utility that can generate DEM files from landscapes you draw on-screen. *Terraform* works on two fundamental levels. In the main window, you can sketch the basic outlines of the landmass, just by drawing them in with the mouse in different colors, with each color representing a different altitude. Once that's done, you can edit the details in the other window by raising and lowering vertices on a grid which can be enlarged or shrunk. I also need to mention Megagem's *FractalPro 5.0* Mandelbrot/Julia set fractal exploration software here. It has the capability to generate DEM files in *VistaPro* format, thus providing a method of converting Mandelbrot images into landscapes.

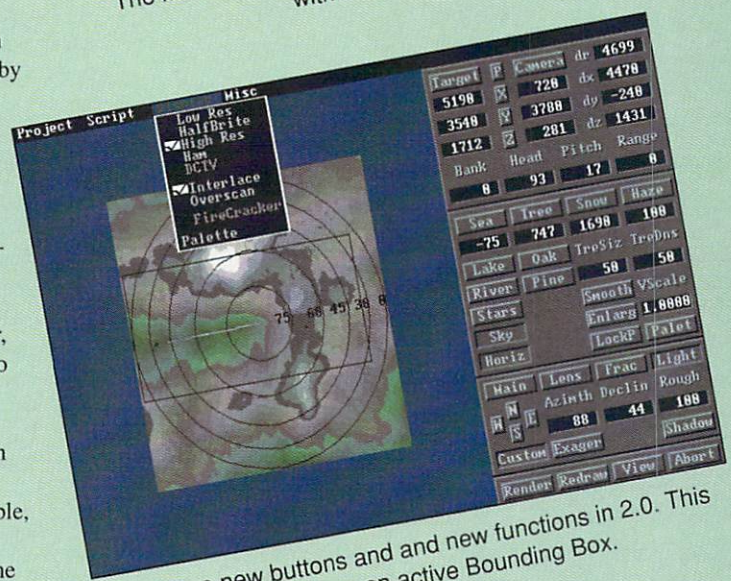
The most interesting method of creating a landmass, however, is through a new menu selection in *VistaPro* 2.0. It allows you to load in any IFF file and translate it into map based on color or intensity. (*Terraform* also has the same ability.) There are additional functions for going the other way - translating a map to an IFF file, but it's far more interesting to render other graphics as landscapes. It takes a bit of fiddling to get something recognizable, but reducing the scale will usually do the trick. The example shown on the previous page, *A Visit to the .info Islands*, was done by outlining the characters in 16 shades of grey in *Deluxe Paint*, putting a box (for decoration) around the result, loading it into *VistaPro*, and reducing the vertical scale to .005.

Once the landmass you're interested in is showing in *VistaPro*'s main window, it can be tweaked to your heart's content. *VistaPro* 2.0 will allow you to crop the section you want to render and then enlarge it to fill the window, either performing a simple enlargement or filling it in with pseudo-detail. Another new function will let you drag a bounding box around a section of the map and render only that part at a considerable savings in time. For example, if you're rendering a scene looking up a valley, by bounding the view at the tops of the surrounding hills you're not going to waste time by having to render what's on the other side of them. Judicious use of the bounding box can save you hours of rendering time.

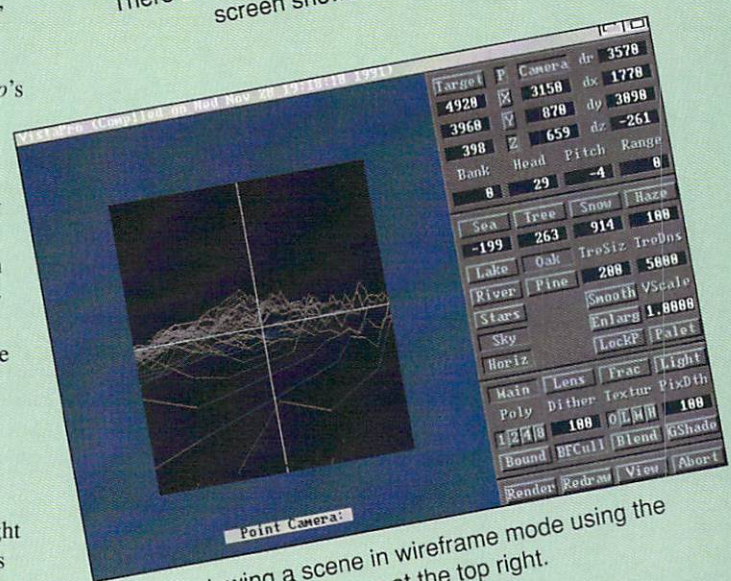
Besides the standard X, Y, and Z points in the 'Camera' and 'Target' areas, there's a new 'P' button. Clicking on it instantly generates a wireframe view, making it a simple matter to check whether you're standing behind a hill or if you're looking straight down instead of ahead. One of the biggest problems I've always had with *VistaPro* is getting the viewing height set the way I want it, but this new button makes it a snap.



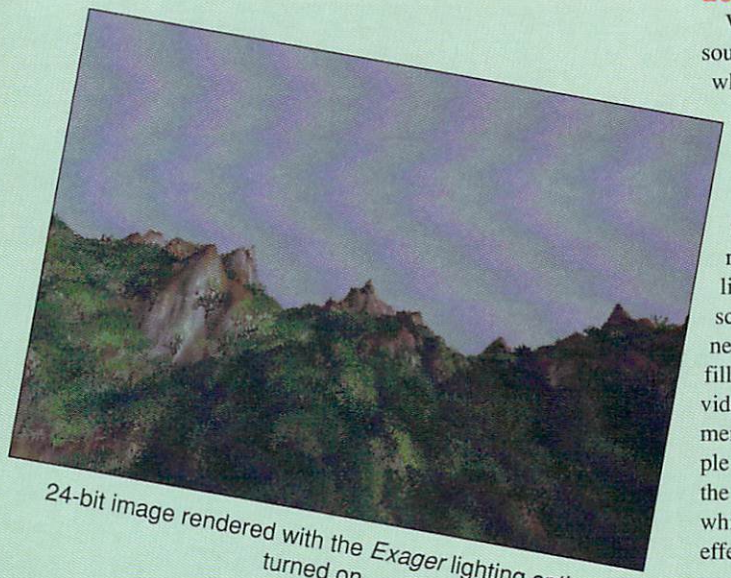
The main control screen from *VistaPro* 1.02. Compare this with the new 2.0 version.



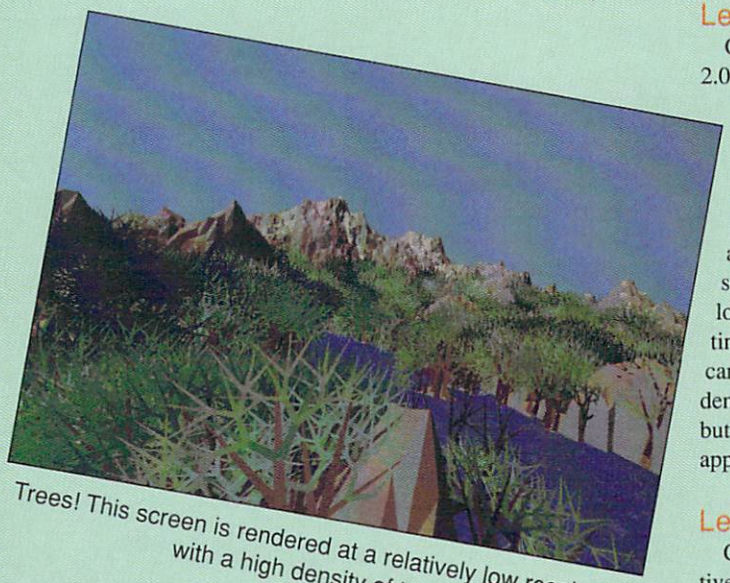
There are new buttons and and new functions in 2.0. This screen shows an active Bounding Box.



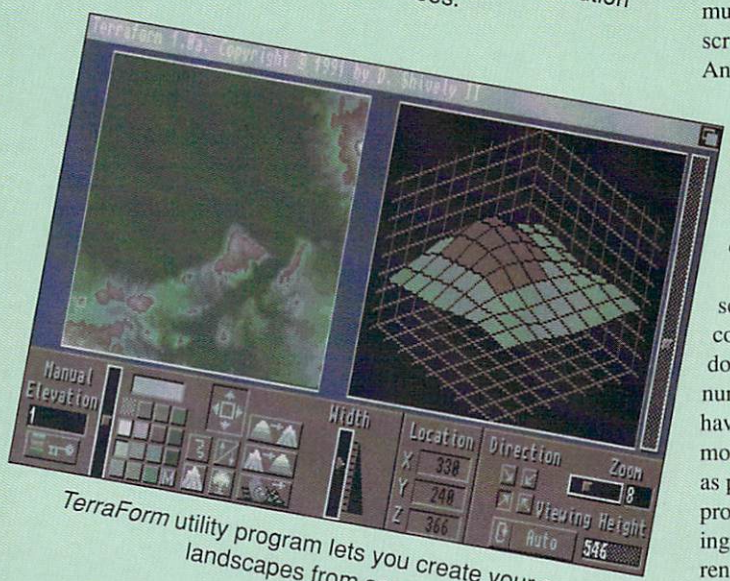
Previewing a scene in wireframe mode using the 'P' button at the top right.



24-bit image rendered with the *Exager* lighting option turned on.



Trees! This screen is rendered at a relatively low resolution with a high density of trees.



TerraForm utility program lets you create your own landscapes from scratch.

Let There Be Light

Without light, there's nothing to see. *VistaPro* handles the light source by letting you draw a line on the map indicating precisely where the light is to come from. There are requesters for declination and azimuth, but if you don't need that degree of control, there are directional buttons. A button labeled 'Exager' will exaggerate the light and can be used as a sort of special effect. A new 'Shadow' button in 2.0 can be used to intensify the differences between light and shade, and there's also a box for a roughness factor which can be used to change how evenly the light hits the surfaces. I've used it effectively to make twilight scenes. Incidentally, if you'd rather have a night scene, all that's needed is to click the 'Stars' button and you'll have a dark sky filled with points of light. Taken together, the lighting options provide very subtle control over how your scene looks. I'd recommend spending a lot of time learning to use them effectively. Simple changes in lighting can dramatically change the entire mood of the landscape. In an animation, moving the light source around while moving through a scene can have a powerful and dynamic effect.

Let There Be Vegetation

One of the additions to *VistaPro* 1.02, the last revision before the 2.0 rewrite, was trees. It worked pretty well, speckling the landscape with pointy pine trees here and there, but 2.0 takes trees much further. There's now a choice between pine and oak trees (unfortunately, I haven't been able to find a way to mix them) and there are parameters for how big they are and how densely they grow. I must inject a cautionary note here - there are two factors that greatly affect how well the trees work in a scene: distance and density. The trees, both oak and pine, tend to look pointy and artificial at close range, and there's also the distinct possibility of having the view obscured by a tree, so great care must be taken in setting the viewpoint. Used creatively, the density setting can be very effective not only in creating forests, but when combined with the size setting, can be used to give the appearance of brush.

Let There Be Pictures

Complicated as all the settings and options are, *VistaPro* is relatively bulletproof when it comes to rendering. No matter how much you mess with the settings, you'll still get something on-screen that you can work from to get the image you really want. And it won't take long before you get what you want on the first try. The earlier versions of *VistaPro* supported lo-res, hi-res, and HAM; 2.0 adds halfbrite and much-needed 24-bit support. Besides the menu selections for displaying in *DCTV* and *Firecracker* formats, you can also output images as 24-bit IFF, true 24-bit, or RGB files. There's also direct output of *Turbo Silver* object files.

Speed is the biggest obstacle in rendering scenes. Creating scenes mathematically is a horrendously complex and time-consuming process, but there are ways to optimize the time you do spend rendering. *VistaPro* has four levels of detail: the buttons numbered '1,' '2,' '4,' and '8' on the main panel. The numbers have to do with the polygons the landscapes are made up of; the more polygons, the finer the detail. While you can render images as polygons, I never do. There's a Gouraud shading method that produces vastly superior results. I do all my initial location scouting in wireframe mode and then at a detail resolution of '8.' I then render a scene or two at '4' just to make sure everything is set the way I want it, and finally render at '1.' The time differences are

staggering: a scene that takes only a couple of minutes to render at the lowest resolution can take a half-hour or better to render at the highest level of detail. And I'm talking here about running on an '030 machine. On a standard 68000, the times will at least double, and more likely quadruple. Learning to use rendering time wisely is as big a part of using software like this as learning what the buttons do, because ultimately, you're going to want to do animations and that takes *lots* of individually rendered pictures.

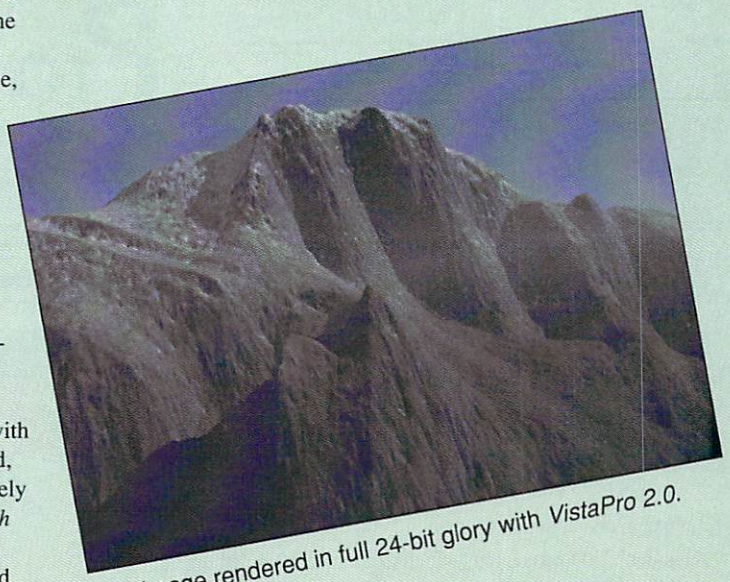
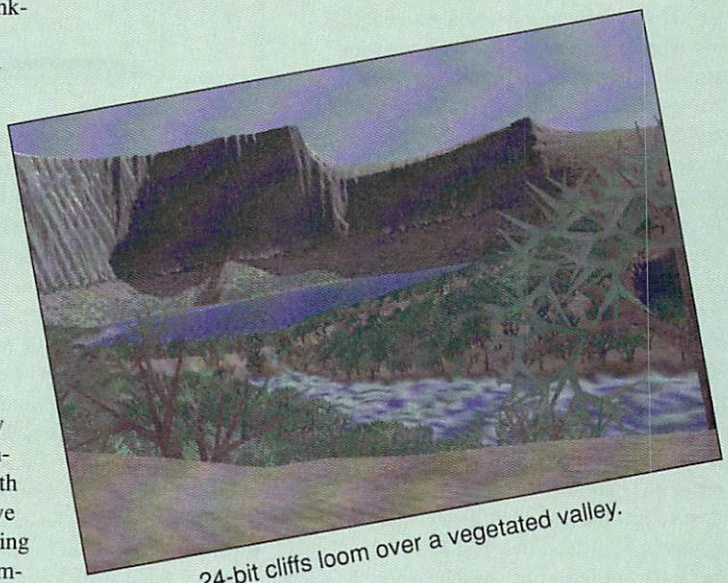


Image rendered in full 24-bit glory with VistaPro 2.0.

Let There Be Motion

There are several methods of making animations with *VistaPro*. Unlike earlier versions, 2.0 includes a straight-line animation path function, which will be adequate for uncomplicated fly-throughs. However, you'll quickly outgrow straight lines. *VistaPro* has sophisticated script control. Anything you can do with the buttons and requesters can be written into a script, previewed, and rendered into an animation automatically. Scripts are relatively easy to get the hang of, but there's an even better way: *MakePath* is a stand-alone script generator with a graphic interface. After loading in a landmass, *MakePath* can create scripts for you based on a series of mouseclicks. There are all kinds of controls for banking, pitch, height, acceleration, and so on. The best thing about *MakePath*, though, is that while it offers extremely detailed control, it also has highly automated methods. You can specify the type of motion you want from a menu of different types of vehicles: glider, cruise missile, jet, helicopter, motorcycle, or dune buggy. To these you can add spins and barrel rolls and make some stomach-churning animations. You can also preview the path in wireframe mode to check it for accuracy. If you're going to do any animating at all, by all means invest in *MakePath*. It will make your life much easier and you'll create better animations, too.



24-bit cliffs loom over a vegetated valley.

Sins of Omission

Much as I love *VistaPro*, it does have a few shortcomings. My biggest complaint is the lack of an 'Undo' button. If you accidentally fill a lake or run a river in the wrong place, you're stuck with it. The same goes for fractalizing and several other functions. I've learned to always save my work before I try something that's going to alter the landmass, but I'd much rather be able to undo the damage I've done to it. Another serious shortcoming is the lack of clouds. Natural Graphics' *Scenery Animator* produces wonderfully realistic cloud formations and so should *VistaPro*. There should also be support for producing object files for 3D modeling programs besides *Turbo Silver*; *Sculpt 3D* and *4D*, *Imagine*, and *LightWave* at a minimum.

Judgement

Since its initial release, *Vista* has gone from a toy to a tool and its virtues haven't gone unnoticed. Arthur C. Clarke, author of *2001: A Space Odyssey*, is one of *VistaPro*'s biggest fans. He recently wrote to Stanley Kubrick, "I have been generating 'artificial reality' images (color and 3D!) based on a fantastic program called *VistaPro*. But for the sake of our old friendship I'd better warn you - if you get it into your computer you'll never do any more work!...I'm so excited by this that I may fly out *VistaPro*'s developer to speed things up and teach me the program's bells and whistles..." Clarke did indeed fly John Hinkley, *VistaPro*'s designer and programmer, to his home in Sri Lanka.

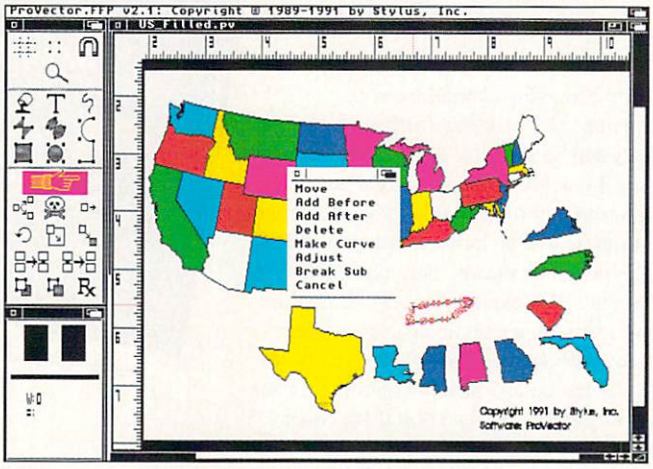
VistaPro is a marvelous work of software artistry. It takes me places I've only dreamed of and shows me things I hadn't imagined. It can do the same for you.

VistaPro
★★★★★
$149.95
VistaPro 2.0
Preview
Virtual Reality Laboratories
2341 Ganador Court
San Luis Obispo, CA 93401
805-545-8515

Pro Vector 2.1

by Mark R. Brown

Unlike IFF bitmaps, structured drawings aren't inherently 'blocky.' They can be scaled and rendered at the highest resolution your output device is capable of, which makes them ideally suited for desktop publishing. No matter what size they were when you created them, or what size you print them out at, curves and circles remain smooth and line weights remain constant.



The South splits away from the union as individual *Pro Vector* objects.

Structure

Besides CAD programs (which are a specialized form of structured drawing program for precise architectural and engineering work), there are two two-dimensional structured drawing programs for the Amiga: Gold Disk's *Professional Draw 2.0* and Stylus's *Pro Vector 2.1*. Each lets you create scalable structured drawings for desktop publishing or illustration. *Pro Draw* is, of course, targeted at users of Gold Disk's own desktop publishing program, *Professional Page*. Stylus is aiming their program mainly at users of the other two of the top three Amiga desktop publishing programs, *Saxon* and *PageStream*. Not that you can't use either of these two drawing programs with any of these three DTP programs - you can. Both drawing programs output EPS (Encapsulated PostScript) files, and all three DTP programs import EPS files. But *Pro Draw* also has its own file format, which can be imported directly only into *Pro Page*. Likewise, *Pro Vector* outputs its own file format (DR2D), which can be imported by both *Saxon* and *PageStream*.

Features

Of course, *Pro Vector* does ellipses, arcs, circles, rectangles, straight-edged and smooth polygons, straight lines, curves, text, and filled shapes with a variety of border line types and weights and a selection of fill patterns and colors. That's what structured drawing *is*. It will also let you smooth out shapes with sharp edges, or 'unsmooth' smoothed shapes. You can alter the line weights and fills of existing objects, edit the points that compose them, clone them, move them, size them, rotate them, and move them in front of or behind other objects. You can merge individual objects into one and split them apart again, group and ungroup objects for easy manipulation, and isolate objects or groups of objects on 256 different editing layers. If you make a mistake you can 'UnDo' it up to 255 levels. To make detail work easier, you can zoom into the page at up to 1200x magnification. You can work with 256 colors out of a palette of 16 million, which are displayed as dithered patterns (if you wish) for the purposes of editing. You can have as many work windows open as you like, and cut and paste between them. You've got snap-to-grid, definable rulers, a 'magnet' tool, etc., etc. Suffice it to say, there are lots and lots of useful and usable features.

Pro Vector works slick, and has a nice feel. Once you get a few principles down, *Pro Vector* is extremely easy to use. So you don't have to agonize over these few points the way I did, here they are: (1) Shift-clicking on the Toolbox icons usually brings up a requester full of gadgets for setting options. (2) The Escape key gets you out of just about anything. (3) You have to select an object *first*, then perform the action on it. (4) You double-click on a point with the *right* mousebutton, not the left, to bring up the pop-up point editing menu. Other than these few points, everything else is pretty self-explanatory. Of course, like any other program with an icon-based Toolbox, you have to learn what the icons *mean* before they do you much good. Fortunately, I found them to be fairly obvious, at least once they'd been defined.

Pro Vector 2.1

★★★★

$299.95

Stylus
1327 Corte De Los Vecinos
Walnut Creek CA 94598
510-256-1195

First Impressions

On first booting up, I had the initial impression that the Toolbox icons were somewhat amateurish looking; they just didn't seem to have the 'professional' look and feel that high-end Mac software has. Then I found on closer inspection that the majority of the icons *do* have that pro look, but the effect is spoiled by just two gaudy icons: the oversized 'hand' and ugly 'skull.' This may seem a small point, but I've found it's often the telling factor when someone makes a 'what to buy' comparison between the Macintosh and Amiga.

Another thing that spoils *Pro Vector*'s first impression is its lack of good examples. The sample drawings were done by Stylus staffers, and they simply are not professional artists. It's too bad that Stylus hasn't included some professional work here, because the program is definitely capable of it.

Speed

As with most such programs, speed is a consideration, especially if you have 'dither' turned on. I would recommend

using all the speed-up tricks in the book: draw everything unfilled with '0' weight lines first, without screen color dithering. Then go back and change everything to the fill colors and line weights you want for your final printed plot.

Stylus recommends using the standard version of *Pro Vector* for fast rendering speed when building pages, then switching to the fast floating point version for accuracy when plotting. Personally, I found the FFP version almost as fast as the integer version for most work. I ended up never using the integer version for anything, though you might want to if you are creating especially complex pictures. (I didn't try the '020 version, since my system's accelerator board is currently dead and gone.) I regularly made use of *Pro Vector*'s ability to interrupt page re-rendering at will, making changes as soon as the object I was interested in appeared on the display. The display can be manually updated at any time by hitting the spacebar.

Nice Touches

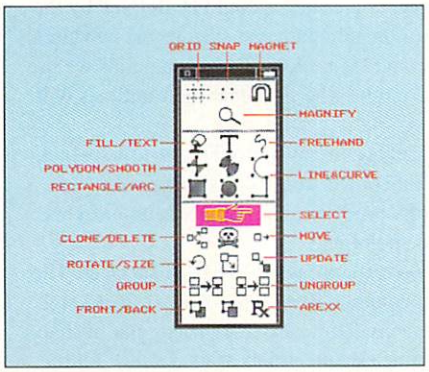
Something these weak old eyes really appreciated was the ability to pick a 'brightness' setting for the screen. The default '5' is a bright white screen (like *Pro Draw*), but I opted for a medium '3' which was much easier on the eyes.

Pro Vector can load its own DR2D structured files, as well as IFFs. Encapsulated PostScript and *Pro Draw* file loading will be eventually be available as add-on modules. Saving can be to DR2D, IFF, and Encapsulated or vanilla PostScript formats. Printed output can go to a Preferences printer, PostScript printer, or HP-GL capable plotter. Nice variety.

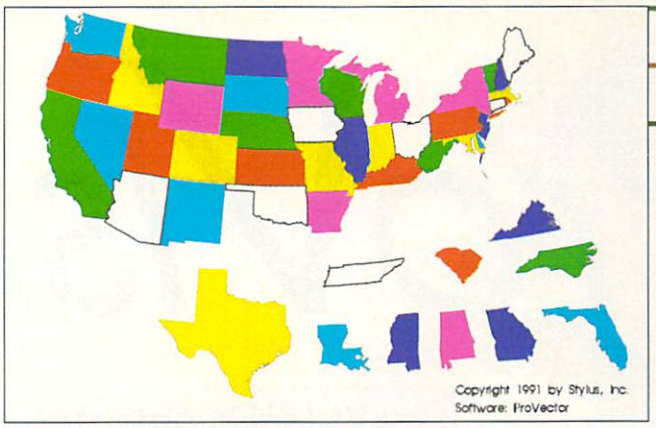
The manual is complete, well-organized, and well written. I easily found almost all the answers to the questions I had.

Shortcomings

Pro Vector is missing some of the high-end features you probably lust after, like multicolor fountain fills, mirrors, and morphing. These are 'coming' in a later version, according to Stylus management. In the meantime, most of these advanced effects can be performed (or at least simulated) with ARexx macros from the 'User' menu. Several advanced macros are included (like 'Blend' and 'Gradient'). Of course, ARexx programmers can write their own. I found the ARexx 'Mirror' to be a versatile tool. If you group objects, it flips the entire group in the X or Y axis, or both; If you don't group them, it flips each individual selected object in place.



The *Pro Vector* Toolbox



A *Pro Vector* EPS output file, imported into *Professional Page*.

You can import IFF pictures for manual tracing, though there is no auto-trace function (yet). The pictures are displayed in a dithered black and white format, which is less than pretty but adequate for tracing. Stylus recommends deleting the IFF for cleaner output after you are done tracing, and I heartily agree. I found no way to include a color IFF in the output.

The screen display seemed to exhibit a regular, if unpredictable, ability to screw up on me. Not often enough to be a hindrance, but often enough that I noticed it. When this happened, I simply pressed the spacebar to update the screen, which always fixed the problem.

You get eight fonts with *Pro Vector*, and a utility to translate *PageStream* fonts to *Pro Vector* format. I'd like to see this utility expanded to allow the translation of PostScript and CompuGraphic fonts, which are out there in greater numbers.

The patterns for the default pattern fills are humongous - the vertical line fill pattern created lines on my printer that were almost an inch apart! And no matter what the zoom factor, they always display as the same size and spacing on the screen. So a pattern that looks like 1/4" tiles at full-screen display size looks like 1/32" tiles at a tight zoom. You don't know what it *really* looks like until you plot the page. But at least you can define new patterns.

There were times when some rendering was going on - or at least some calculations for some rendering - when I wasn't sure that the system hadn't locked up. There was no indicator, no sleep pointer, no nothing, that anything was happening or was going to happen. Please, programmers, don't leave the user in the lurch like that! Let us know that something is going on!

Output and Exporting

We got our best black and white printed plots on my printer - a Deskjet 500 - by selecting 'PostScript' output and running the results through the public domain PostScript interpreter *Post*. The results were levels of magnitude better than *Pro Vector*'s built-in Preferences plotting directly to the Deskjet 500, though I had the highest (300 dpi) printer resolution picked for both.

Our (monochrome) file compatibility tests found that *Pro Vector* EPS files printed fine, with a nice selection of grays, when interpreted directly by a QMS PostScript laser printer or by *Post*. When imported into *Professional Page* the results were not as good, with the grays boiling down to only four shades. We don't know why. *Saxon* did even worse, reducing everything to only black and white whether we imported EPS or DR2D files. Maybe we're missing some settings somewhere, but that's all we could get out of it. *PageStream* performed flawlessly with either file format, producing results as nice as a straight PostScript dump.

Conclusions

I like *Pro Vector*. I like using it (the user interface is intuitive and easy to use). I like the output (at least to PostScript). It's a powerful program (taking into account the noted shortcomings). I like it enough that I want it to be even better, so that I can use it without hassles. I eagerly await the next upgrade.

ProVisions

ProVisions Contents

ProVisions

GRAPHICS

by Brad Schenck

Computer software for drawing and painting images draws heavily on the conventions we're familiar with from traditional media. Brushes, tools for drawing straight or curved shapes, and color mixing techniques in these programs are all analogous to real-world techniques and tools.

Rendered 3D graphics, however, are not exactly like any kind of creative process available before computers. The skills used in modelling, lighting, and rendering scenes of 3D objects are akin to sculpture, stage set design, and photography; but what we have here is something as new as anything under the sun.

3D modelling involves the creation of *primitives* like cubes, cones, tubes, and spheres.

Beginners have a few conceptual leaps to make while they learn to use their 3D tools. It's not easy for most of us to get used to designing in three dimensions rather than two, especially since the computer represents this imaginary 3D space in two-dimensional displays. This month we'll take a look at some of the basic concepts that are used in most 3D software. Specific techniques vary from program to program, and some of these will be mentioned. But for the most part, we're looking at the fundamental ideas rather than the way they're implemented. (Pay special attention to 3D-specific terms, which have been italicized.)

Object Geometry

In order to design a 3D object for rendering, it has to be 'described' to the software in terms that define its shape and other properties. This is what the artist does in a *3D modelling* environment.

At its most basic, 3D modelling involves the creation of *primitives* like cubes, cones, tubes, and spheres. These basic shapes can be combined to make more complex assemblies. A simple table is a good example of an object built from a short, wide 'cube' (the top) and four tubes (the legs). Modelling software which is limited to the use of primitives alone doesn't offer much power to the user.

Much more useful is software which defines objects by the use of *points*. If you drift mentally back to your days in Algebra 101, you'll remember that a point is a location in space that has no real size of its own. It just defines a spatial position. If we think about our table object again, its simple shapes could be defined by the corner points of the tabletop, and each leg as two circles - at the leg top and leg bottom. The more points we use to describe the circles, the smoother their outlines will be.

Points themselves are invisible. The *surfaces* which make up a visible object are tied to these points. This shows your software where the edges of an object are (connecting the points).

There are two different ways to define surfaces. The first, and most common in Amiga software, is through the use of *polygons*. These are often triangular in shape. A polygon, defined by the points at its corners, represents a flat surface that will be rendered as solid. Two

polygons lying in the same plane (like two triangles that define a square) should render as one flat surface; but if the polygons lie at an angle to one another - like two pieces of plywood connected by a doorhinge - the software should render them as shaded. The one closest to a light source will be lighter than the other. So now we know that our tabletop is made up of eight points, arranged as two squares (one above the other) and these points are connected by polygons that define the table's surfaces.

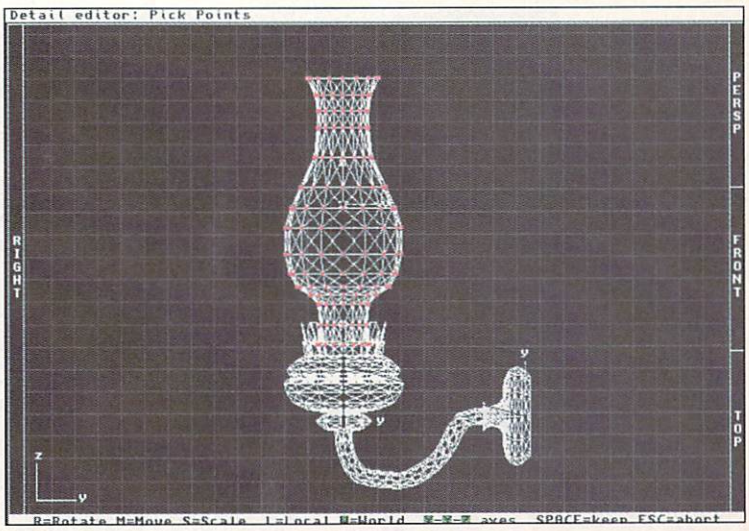
The other technique that some software uses to define objects is *spline* geometry. Splines are mathematical curves, again anchored to points at the ends and possibly at midpoints of the curves. An advantage of splines is that they always render smoothly. If you imagine a curved surface made up of polygons, you'll see that if you look at it very closely the edges of the polygons become apparent. Remember that a polygonal circle is made up of points with straight edges connecting them - you have sharp corners connected by straight lines. A spline curve is defined mathematically as a curve: no matter how close you zoom in on it, it will always look perfectly curved. Spline objects are superior to their polygonal cousins for organic shapes and creatures, since splines bend and twist more like the skin that covers an animal.

Object editors that allow for the editing of points are far more powerful than ones which use only primitives. Obviously, an artist can build an object from scratch by creating points and linking them with polygons, but also it's possible to create a flat shape and *extrude* it (stretching it through space, giving it thickness) or *lathe* it (spinning it as though on a lathe, creating a rounded object with the profile of the original outline). Some object editors have unusual features like *boolean operations*, which 'carve' one shape out of another, or extrusion along a drawn path, rather than just a straight line. Some even employ powerful algorithms which allow the artist to load in a 2D painted picture and create a 3D object based on the shape of that image.

Surface Properties

Once the shape of an object has been created we can concern ourselves with its appearance. While programs vary quite a bit in their treatment of surfaces, the artist usually can count on adjusting the color, glossiness, transparency, and reflective properties of an object. These types of properties can define metal, glass, and matte surfaces, among others.

More advanced techniques involve *algorithmic textures* and *image mapping*. Algorithmic textures are supplied with some programs. These are software-based 'materials' such as wood, marble, and bricks. The artist sets the color of the texture and other parameters like



In *Imagine*'s object editor we see how an object is built with points (some highlighted in red) and polygons, which in this case are triangular.

wood grain size, and that texture is automatically applied to the object. An advantage to algorithmic textures is that they usually need less memory than image maps; also they have infinite detail, so that it's possible to look at them very closely without the texture breaking up. Unfortunately, they may render more slowly than image maps, and they're usually limited in variety. In many cases, though, these textures may be used to change not just the color of an object, but its reflectivity and transparency too: picture a piece of wood whose grain reflects like brass, or a marble ball whose veins are transparent.

Object editors that allow for the editing of points are far more powerful than ones which use only primitives.

Some software offers *bump* or *altitude mapping*, in which an algorithmic texture or image map alters the 'height' of an object's surface. This can be used to create irregular surfaces like orange peel or hammered metal, or to 'emboss' a design on an object. Very impressive effects are possible with bump mapping, and object surfaces can be made to seem far more complex than their geometry. A drawback is that if the surface is seen from the side, its profile will be as smooth as the object geometry; the 'bumps' are just shading effects on the surface. A more advanced feature not yet available in Amiga software is *displacement mapping*, in which the shape of the rendered object really is changed by the effect. An example of displacement mapping might be a screw object whose geometry is simply the screw cap

This composite shows the same image rendered in wireframe, scanline, and raytrace modes.

and a tube for the shaft. A displacement map can be used to create the threads on the screw, rather than modelling them in detail.

Rendering

With the objects built, it remains to place them in a scene, light them, and generate the picture. Lights may be of any color, and may or may not cast shadows. Light shapes can include spherical lights, cone-shaped lights, or tube lights like flashlight beams.

A *3D renderer* may create pictures in a number of styles. Simplest is *wireframe* or *filled wireframe*, which resemble the objects as seen in the object editor. Lighting, shadows, reflections, transparency, and refraction don't appear. Wireframe and filled wireframe images render very quickly.

Raytracing excels in the creation of scenes that look convincingly real even when they show the impossible.

Next in complexity are *scanline* or *solid modelled* renderings. Most of the computer graphics you see on television were rendered with these techniques. They use fairly realistic lighting, though without reflections, refraction, or shadows. Some software adds shadows in this mode at a substantial cost in rendering time. *Reflection mapping* may be used to simulate reflections. Scanline renderings are generated fairly quickly.

Truly photorealistic images are produced with *raytracing*. This is a rendering mode which can provide shadows, transparency, refraction, and reflectivity. Raytraced images can be indistinguishable from photographs. Used more often for still images than for animations because of long rendering times, raytracing excels in the creation of scenes that look convincingly real even when they show the impossible. While scanline rendering usually takes minutes, raytracing often takes hours and sometimes - especially on slow computers - days.

Dig In

Keep these basic concepts and features in mind as you shop for 3D modelling and rendering software. You'll find that the competition has much in common, but each set of tools has its own strengths and weaknesses: your choice may be born of compromise. At the very least you should now have an idea of what features can be offered, and with that knowledge you can make sense of the claims of developers and the oversights of reviews.

Some Amiga 3D Software Sources

Caligari 2: Octree, 311 W. 43rd St., Ste. 904, New York NY 10036, 212-262-3116

Draw 4D Pro: Adspec, PO Box 13, Salem OH 44460, 216-337-1329

Imagine & Turbo Silver: Impulse, 6860 Shingle Creek Pkwy., #110, Minneapolis MN 55430, 612-566-0221

LightWave (Video Toaster): NewTek, 215 E. 8th St., Topeka KS 66603, 913-354-9332

Real 3D: Activa, PO Box 23260, 1100 DT Amsterdam, The Netherlands

Sculpt series: Centaur Software, PO Box 4400, Redondo Beach CA 90278, 213-542-2226

VideoScape 3D: OXXI/Aegis, 1339 E. 28th St., Long Beach CA 90806, 213-427-1227

by Bob Lindstrom

More than half a decade after it was first introduced, the Amiga still can claim the best internal music hardware in the computer industry. While everyone else struggles to catch up with software extensions or hardware add-ons, the Amiga sings along with four voices of digital sound in 8-bit resolution.

Okay, so those specs aren't going to persuade Jan Hammer to dump his Synclavier at a garage sale, but they come in extremely handy when you want to create a completely self-contained multimedia presentation or just need a few extra sounds to fill out that MIDI arrangement.

Best of all, since the Amiga's voices can be anything you can sample, they give you almost total sonic freedom. Most of the affordable add-on sound gadgets for 'that other' computer lock you into lame-o 2-op FM synthesis and one (usually noisy) digital to analog converter (DAC). In contrast, the Amiga's four DACs are reasonably quiet and the add-on Amiga digitizers that permit you to create your own samples typically cost less than even the lowest-cost IBM-PC sound board.

Three digitizing 'goodies' recently showed up on the .info doorstep, some new, some not: the Aegis *SoundMaster* digitizing hardware and *AudioMaster* software from Oxxi; Deltaware Product's *A-Sound Elite* sampling/editing software; and the *Audition 4* digital sound editing software from Sunrize Industries. I tuned them up in a little head to head and ear to ear competition.

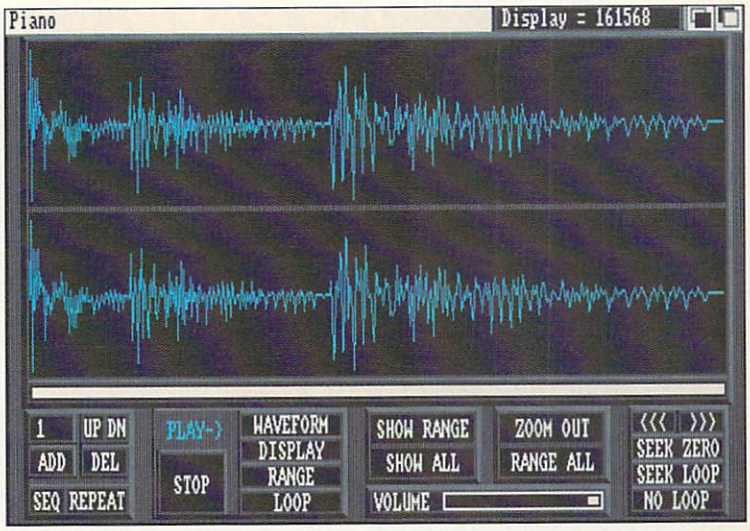
Master of Sound

With the *Aegis SoundMaster*, Oxxi has gotten it right for all grateful Amiga 500/2000/3000 musicians. (It does not work with the A1000.)

The *SoundMaster* connects to the Amiga's serial port. A long, round cable not only allows you to bring the base unit within easy access, it is also far more substantial than the ribbon cables on some other samplers.

The base unit is less than an inch thick and slightly larger than a 3.5- inch floppy disk. Stereo female RCA jacks accept line input. A pair of mini phono plugs accept external microphones. If you don't need the ultimate in fidelity, a built-in mono microphone may be activated with a software switch within *AudioMaster*. (Note that the internal mic can also be mixed with the line input to create live combinations of, for instance, CD music and voice-over.) A single smoothly-adjusting slider with a large, easily grasped knob tweaks input gain for both stereo channels and a red LED indicates input overload. In all, the *SoundMaster* is extremely well configured and convenient to use.

Aegis SoundMaster & AudioMaster IV
★★★★✚
$199.95
Oxxi



A stereo sample undergoes surgery in *AudioMaster*.

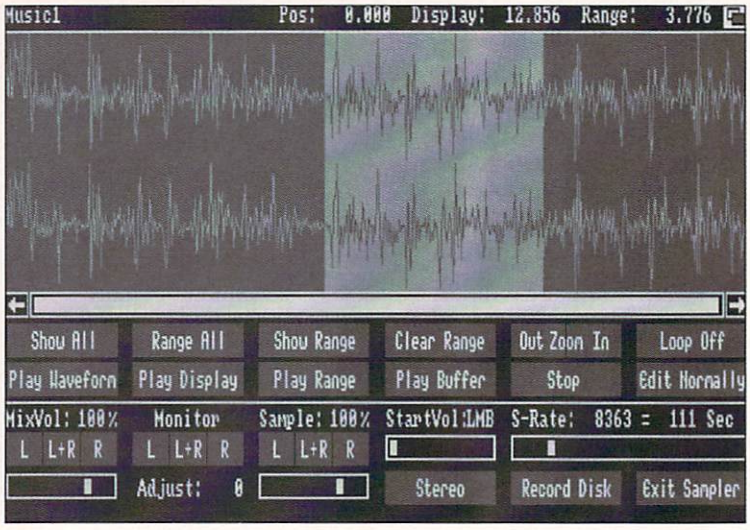
The one failing? *SoundMaster* has no pass-through for the parallel port. Apparently perfection is unattainable among digital samplers. You'll have to buy a switchbox if you want to move between a printer and sampler without cable swapping. My vote would have been for a pass-through in the parallel plug.

The unit is packaged with Aegis' familiar *AudioMaster IV* software, pretty much the de facto standard for Amiga digital sampling and editing. With the *SoundMaster* hardware, *AudioMaster IV* can sample at rates as high as 56kHz, though you'll need plenty of RAM and disk space to store those lengthy high-resolution samples.

The combination of *AudioMaster* and *SoundMaster* is now my favored setup.

The combination of *AudioMaster* and *SoundMaster* is now my favored setup for digital sampling. Though it lacks a few features of the newer editors (see below), *AudioMaster IV*'s interface, its moving cursor (an invaluable asset when trying to rough out locations in a sample) and its features add up to just about everything you need for professional sampling, editing, and looping. In addition, the 'CD Player' included with *AudioMaster* lets you create complete compositions by sequencing several loops within a single large sample.

SoundMaster stands at the same level of quality as *AudioMaster*. Durable, well-designed and, most important,



Audition 4 transforms a stereo sound sample.

well shielded and quiet at the input/output stage. It's an excellent choice among Amiga digital samplers. As good as it is, it isn't a license to be careless. If you're producing samples to the highest standards, you'll need to exercise care to avoid getting interference from ground loops or (my problem) modems that generate RF noise.

Auditioning Samples

Sunrize's *Audition 4* offers very much the same stereo/mono cut and paste features as *AudioMaster IV*. Two things set it apart. The editor, according to the package, is programmed entirely in 68000 assembler, which gives it impressive speed of execution. That speed also permits *Audition 4* to generate some intriguing real-time echoes, delays, filters, and flanges.

Each one of these samplers offers things that are missing in the others.

Okay, realtime effects are fun but not of much use to me. What makes *Audition 4* a worthy part of my sampling arsenal is its outstanding filtering and the numerous 'try it out' options.

Audition has the fastest, more efficient, best sounding digital filters I've heard in an Amiga sample editor. Its adjustable low pass, high pass, band pass, and band barrier filters are invaluable when trying to crank the most out of those eight bits of audio.

More impressive, though, is that the filters, like most of *Audition*'s editing effects, have a 'Try' option that permits you to 'audition' the effect before permanently altering your digital data.

Audition 4
★★★★
$99.95
Sunrize Industries

Like *AudioMaster, Audition 4* also has a digital 'sequencer' that can create sequenced loops within a single sample. It is also possible to record direct to disk, although the full potential of that will only be realized with higher bit-resolution add-on boards, at least in professional applications.

My one complaint was that setting loop points and finding zero points in IFF instrument samples was a bit clumsy compared to *AudioMaster*. However, the 'what-if' potential of *Audition 4* still makes it a must-have tool for serious sample creators.

Tuning to an A (-Sound)

The interface of *A-Sound Elite* is not quite as elegant as the previous two stereo/mono sample editors but it, too, boasts unique features along with the customary sample manipulation capabilities.

Memory permitting, *A-Sound Elite* accepts up to 16 tracks of digital samples. It will edit and save either 8- or 16-bit samples

It can create sequenced sample files (like the CD Player in *AudioMaster*), then save them in a proprietary runtime format as stand-alone musical scores that may be played by just running the file.

Again, loop points aren't as easy to set up as in *AudioMaster*, but *A-Sound* joins *Synthia Pro* (from The Other Guys) as one of the few Amiga sample editors that includes crossfade looping.

Finally, *A-Sound Elite* includes a thorough ARexx implementation that makes it possible to control almost all edit, file, and playback functions through an ARexx port.

Sample Them All

So which to get? Get 'em all. Sorry, it's the expensive truth. Each one of these samplers offers things that are missing in the others.

If you can only buy one, the *Audio/SoundMaster* combination is that one. It has the best overall interface and feature set.

A-Sound Elite
★★★✚
$129.95
Deltaware Products

If speed, editing experimentation, and filtering are paramount, *Audition 4* is your choice.

And for creating stand-alone files and crossfade loops, *A-Sound Elite* takes the honors.

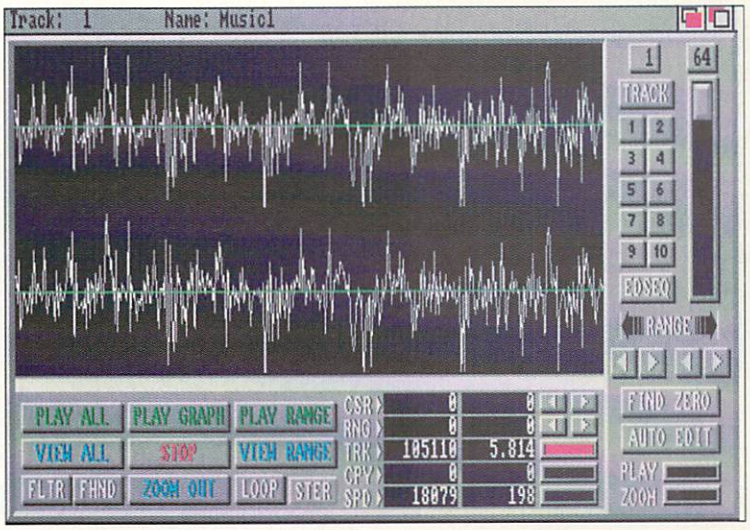
Each of the above functions effectively as basic sampling/editing software and will work well by itself. Spend a few minutes with the manual, click the mouse around a bit, then listen to what your ears and your personal requirements tell you.

Addresses

Aegis SoundMaster & AudioMaster IV, Oxxi, PO Box 90309, Long Beach, CA 90809, 213-427-1227

Audition 4, Sunrize Industries, 2959 S. Winchester Blvd., Ste. 204, Campbell, CA 95008, 408-374-4962

A-Sound Elite, Deltaware Products, 3148 Kingston Rd. Suite 202, Box 395, Toronto, Ontario M1M 1P4, 416-431-2047



Stereo sample editing in *A-Sound Elite*.

ProVisions

MULTIMEDIA

by Harv Laser

I have had enough new CDTV products land on my desk in the last couple months to fill two columns, so we'll get back to Amiga-specific stuff issue after next.

More CD+G

Warner New Media has released another bunch of classical CD+G discs, bringing the total number available from them to sixteen. This latest batch includes:

- Felix Mendelssohn "Symphony No. 2" (WNM 15029)
- Felix Mendelssohn "Symphony No. 4" (WNM 15013)
- Wolfgang Amadeus Mozart "Magic Flute Highlights" (WNM 15012)
- Sergei Prokofiev "Peter and the Wolf" (WMN 15028)
- Hector Berlioz "Symphonie Fantastique" (WNM 15015)

Like WMN's previous classical titles, these new all-digital (DDD) recordings have on-screen librettos and learned commentary on the musical movements and instruments used, along with mood-setting screens of graphics which scroll, fade, color cycle, and perform other feats of visual delight. All discs are retail priced at $19.98 and your job, Mr. Phelps, is to find them. In the months since I first wrote about CD+G in these pages, there's been no apparent improvement, at least in my neighborhood, in record store clerks' knowledge of CD+G. But if all else fails, you can order the discs directly from Warner New Media, if you're willing to pay full retail plus shipping. Call 1-800-621-4WNM to order, or for more info.

Warner New Media has released another bunch of classical CD+G discs.

The Fred Fish Collection

I recently received *The Fred Fish Collection on CD ROM* from Hyper-Media Concepts. In case you're new to the Amiga, Mr. Fish (yes that's his real name) has been compiling and releasing disks full of 'freely redistributable' Amiga software since soon after the first Amiga 1000s shipped. Taken as a body of work, the Fish collection comprises one of the largest masses of useful, low-priced or free software you are every likely to see available for any brand of micro

Two of the latest CD+G discs from Warner New Media.

computer. If you're already an Amiga owner, run a BBS, or are the librarian for your user group, this one CD alone is almost reason enough to buy a CDTV. Crammed onto a single 5" plastic platter are Fish Disks from 1 through 530. All the files - over sixty thousand of them (!) - from every disk are arranged into a directories and drawers which perfectly emulate the original disks as Fred Fish released them. If nothing else, this fact alone should turn on your light bulb about just how much data storage space there is on one compact disc.

The Fish collection comprises one of the largest masses of useful software you are ever likely to see.

The Fish Collection CD is more than just a mass duplication of the Fish Disk library. There are many handy utilities included to help you manage and explore this enormous warehouse of data. With a special "ExpressFish" version of ExpressWay Software's *Express Copy*, you can make a perfect Fish Disk duplicate to one or more floppy drives attached to your CDTV in about two minutes. It works flawlessly. Timm Martin's powerful directory utility 'SID V1.06' is here. So is B. Lennart Olsson's 'Aquarium' program, a Fish Disk database to help locate particular programs contained in the library.

Earlier editions of HyperMedia Concepts' Fish CD ROM also contained LHARCed .LZH files of all the Fish disks on the same CD. However, the Fish collection has grown too large for a single CD to contain all of this, so the .LZH collection is now unbundled onto a second CD, The Fred Fish Collection "Online" CD ROM.

The Fred Fish Collection on CD ROM Vol. 1.3

★★★★★

$69.95 (w/o caddy)
HyperMedia Concepts
5200 Washington Ave. Suite 224
Racine, WI 53406, 414-632-3766

Either disc carries a suggested retail price of $69.95, although owners of the Fish CD can buy the Online CD for just ten bucks plus shipping. A subscription service is available too, since HyperMedia Concepts has been, updating both discs three times a year, as long as Fred Fish keeps releasing approximately ten new floppy disks each month, as has been his pattern for some time now.

The Fred Fish Collection on CD ROM is an incredibly valuable and useful resource, assembled by people who obviously care about what they're doing.

ParNet

For a few months now I've had my Amiga 2500 and CDTV 'networked' together with a simple $5 parallel port cable and software available on Fish disk #400 - 'Parnet' by Doug Walker, John Toebes, and Matt Dillon.

Cooking up this two-machine network only took a three step recipe:

❶ I bribed a friend to solder-jumper two pins on a $5 cable I bought at a computer store down the street.

❷ I connected my 2500 and CDTV's parallel ports together with this modified cable (actually, not directly, since I have a 4-way 'ABCD' switchbox on the Amiga to handle my printer, scanner, and DCTV which also want the parallel port... so the Parnet cable gets to be selection 'D' on that box). Naturally, as with any switchbox, only one device gets the port at any one time.

❸ I perused the Parnet drawer and its docs on Fish Disk #400 and mounted the various bits & pieces of the software on the Amiga and on a Workbench 1.3 boot floppy disk for the CDTV. This involves a mountlist entry (just append it to the existing mountlist), a handler in the L: directory, a device in DEVS: dir, and a program in the C: dir. That's it.

Then I just hooked up a standard Amiga floppy disk to the CDTV's floppy drive port, and fired up the machine

ParNet

★★★★+

The Software Distillery
Copyrighted Freeware on Fish Disk #400

with this customized Workbench 1.3 disk in it. This overrides any bootable CD-ROM disk that might be in the CD drive. The startup-sequence mounts and initiates the network stuff. Back on the Amiga side, I just type in a couple commands to get the network started.

Viola. I now have a device I can talk from the Amiga to as 'NET:' and can access CD ROM disks on the CDTV from the Amiga for a total cash investment of $5.00 (plus dinner for my friend with the soldering iron).

With Parnet you can use the CDTV as an outboard CD-ROM drive for the Amiga without disabling or modifying the CDTV in any way at all. *All* your favorite software can talk to NET: through their file requesters.

Parnet's only real bugaboo is that once having used it, then left it, the parallel port is inaccessible until you reboot. I'm told that Commodore's 'parallel.device' driver would have to be re-written to fix this.

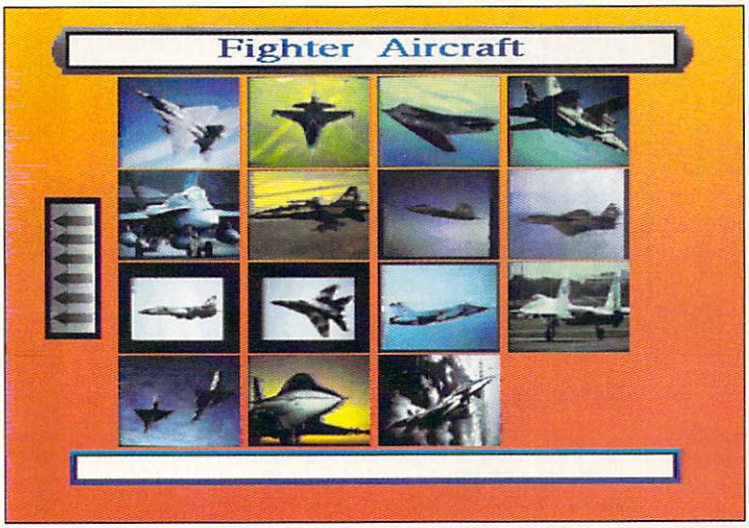
Advanced Military Systems

If it's pictures and descriptions of military hardware you're after, this disc is for you. *Advanced Military Systems* (AMS) is a graphical encyclopedia of over a thousand IFF-HAM images of American, European, and Soviet fighter jets, bombers, helicopters, ships, submarines, ground weapons, vehicles, tanks and missiles. Each of these classifications is broken down via a tree-like submenu structure into more and more specific divisions of equipment, easily navigated with the CDTV controller using only the directional pad and the 'A' and 'B' buttons.

As an example, let's say you wanted to see pictures of the stealth fighter plane. Start at the disc's top menu and choose 'Air Power.' Then 'Fighter Aircraft' from the next screen of five choices. Finally, click on 'F-117A Nighthawk' on the Fighter selection screen's dozen possibilities. You're then shown a slideshow of 15 pictures of the plane while a voice reads a few paragraphs describing it and Beethoven's Fifth Symphony plays in the background. After viewing the show, you're taken to the 'extra options' screen where you can view the same pictures in silence, read the same narration as text on the screen, see some stats about the plane, or get help for disc navigation if you need it.

The entire disc operates the same way for each piece of military hardware it covers. The whole presentation

Advanced Military Systems
★★★★
$39.95
Dominion Software & Design
3328 Oakshade Court
Fairfax, VA 22033, 703-318-8270



Dominion's *Advanced Military Systems* for CDTV.

was created and sequenced with Right Answers Group's *Director* software. Everything works just fine with no real glitches. The background music is pleasantly varied from classical to rock to new age stuff. The male voice narration is clear and understandable. All of the pictures are top notch quality, full overscan (no borders), and look great on a television set.

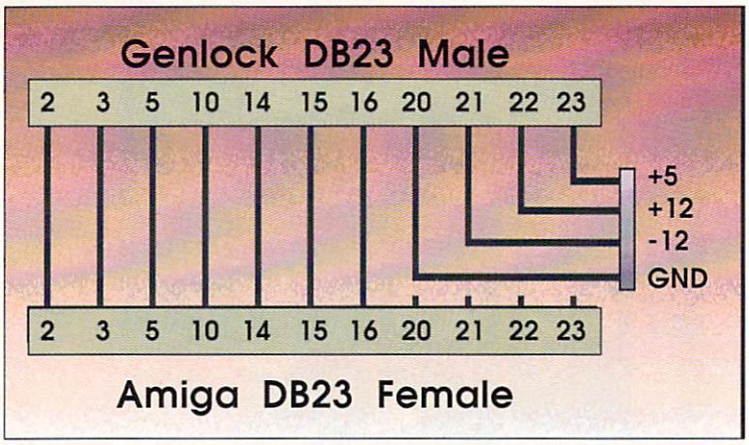
AMS does have some quirks which annoyed me. If you don't touch your controller's buttons for about a minute, the disc goes into an automatic random slideshow with music. If there's some way to turn off this 'feature,' I sure couldn't find it. As you navigate the disc, a transitional 'going to' screen appears between subjects and areas. Despite the fact that you will see this screen *many* times, it has all the graphic allure of a doormat. It looks like it was created in *DPaint* in about ten seconds. Cheesy and cheap looking, and since the CD is read-only, you can never change it.

Advanced Military Systems is a graphical encyclopedia of over a thousand images

I also found it curious that there were *no* interior or cabin shots of planes, ships, or tanks. No instrument panels. No crew quarters. All of the vehicles are viewed only from the outside.

Lastly, the narration and music came only from right speaker. I can't imagine why AMS doesn't have stereo sound. I tried to reach Dominion Software to ask about this but they never returned my calls. Still, all in all, Dominion has done a good job with this presentation.

by Oran J. Sands, III



How to wire your Toaster/Genlock Adapter.

Okay gang! You asked for it so here it is! Finally, a way to use your genlock with a Toaster-equipped Amiga. Whether you miss your trusty old genlock or just want to establish a more versatile video studio setup, here is a way to use an external genlock with the Toaster with no reduction in quality or operation. All it requires is a few bucks worth of parts and a few minutes with a soldering iron.

How It Works

The reason you can't use a genlock with the Toaster is that the Toaster *is* a genlock, at least as far as the Amiga can tell. It feeds the Amiga the 28Mhz clock signal and vertical and horizontal reset signals the Amiga expects to get from a genlock. Attaching a genlock to the RGB port means trying to feed *two* sets of each signal to the Amiga, and the poor computer has no idea what to do next. So the obvious solution is this: we can't let both sets of signals get to the Amiga. Since the Toaster is plugged into the video slot, we'd have a terribly difficult time trying to turn it off, so let's work on the more reasonable solution - isolating the genlock.

The reason you can't use a genlock with the Toaster is that the Toaster *is* a genlock.

Every genlock has several signals going from it to the Amiga, and several going the other way as well. Basically, all we're going to do is to stop *all* the signals going from the genlock to the Amiga. This will keep the genlock from providing the synchronization signals necessary to lock the Amiga to whatever video is fed to the genlock. This means we we will need to find some other way to sync the two. Taking a look at the Toaster shows us that whatever video is fed to its #1 input is what the Amiga syncs to. This is much the same as your standard genlock. Now, imagine that our genlock is fed with the same signal that is fed to the Toaster's #1 input - it would then be synced not only to the video signal but, by default, also to the Toaster. And since the Toaster drives the Amiga, the genlock would also be synced to it. So well, in fact, that the genlock then operates perfectly... with a few simple but important exceptions.

The Exceptions

First, keep in mind that you need to timebase correct *any* VCR signals sent to the Toaster. This will not change, and that means that any VCR signals you want to send to your genlock will also need to be timebase corrected. But if you have a Toaster, you probably already have a TBC'd VCR, or will have soon.

Secondly, we need to worry about how to power the genlock. Usually external genlocks derive their power from the Amiga's RGB port. But with a Toaster installed, this isn't such a good idea. Not only does the Toaster draw substantial current, so does the hard drive you need with a Toaster setup. And don't forget the five or more megabytes of RAM you've got installed as well. That 200 watt power supply is now beginning to show a little strain. Add an internal TBC or two and you can use your Amiga to heat the room! You're still within operable limits, but the addition of a genlock may push it over. Some genlocks draw more current than others, so pulling power from your Amiga is a risky situation. We'll need to address this problem in our design.

Lastly, we find that we'll need some way to deal with the Toaster's interface, a problem that's easily solved.

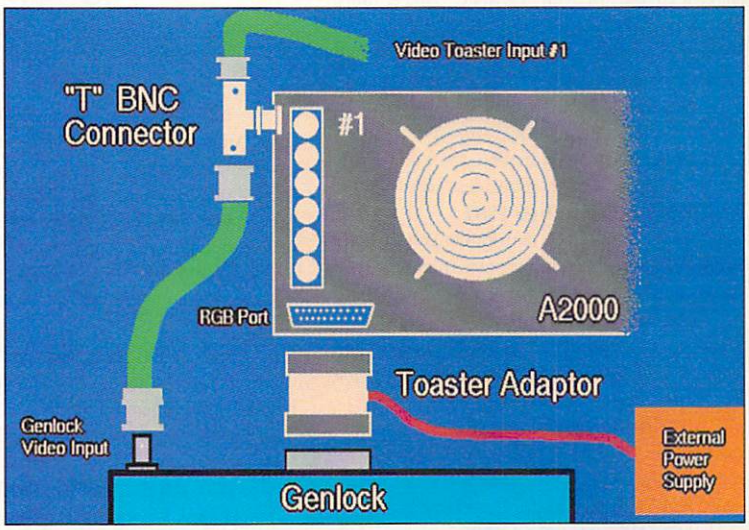
Heat Up the Iron

First, the disclaimer: *.info* magazine, its employees and shareholders, and this author are not liable or responsible for any damages this project may do to your Amiga, its peripherals, the Video Toaster, your genlock, your household, your marriage, or the Amazon rain forest. The reader assumes any and all responsibility for the aforementioned damages and holds harmless the aforementioned parties. Okay, so much for law school - now on to the design.

The *Toaster Enhancer*™ is simply a connector that interrupts the signal flow from the genlock to the Amiga. It consists of a male DB23 connector and a female DB23 connector with seven short wires running between them. Look at the illustration to see which pins are connected and which ones aren't. DB23 connectors are often available from your local computer or electronic parts dealer, or you can get them mail order. (Benetech Electronic Supply has them: call 817-831-8700.) House your project it in a null-modem shell (found at Radio Shack)

and it's almost done. (See the end of this article for information on how to by one already assembled.)

But we still need to deal with the power problem. Hopefully, you own a genlock that has an optional external power supply. But, since the best selling genlock never had that option, you'll probably need to rig one up. Look at the wiring diagram closely; The four lines at the right show the place to connect power from an external power supply. This power supply will need +5 volts dc, +12 volts dc, -12 volts dc (maybe - check your genlock's requirements), and ground connectors. Possible sources for such a power supply are the switching power supplies sold for use with PC clones, or perhaps a supply that has been removed from an older PC. These are often available free, or cost no more than $10. Many A500 owners have replaced their wimpy supplies with something heavier and would *love* to sell their old one to you. Just make sure that the supply is connected to *only* the proper pins on the genlock-side connector. You'll blow everything up if you hook it to anything else, like the Amiga-side connector. Major smoke is possible if you goof this up.



How to hook up your Toaster/Genlock system.

Up and Running

Once the Toaster Enhancer is built, merely connect it to the Amiga's RGB port and then connect your genlock to that. Make sure that your genlock power is hooked up and working. Hook up your RGB monitor to the genlock. Now make sure that the video being fed to the Toaster's input #1 is also connected to your genlock. (See the illustration for one possible way to do this.) Now comes the difficult part: turn on the Amiga. You'll notice that the monitor display is floating all over the screen. This is because the Amiga is being driven by the Toaster, but the Toaster is driven by the video until it's activated; i.e., you have to run the Toaster software. If you can manage to follow the monitor screen long enough to double-click the Switcher icon, that'll do it. Once started, the Toaster will continue to sync to the video even after it's deactivated, so you can now quit the software. You'll find that the screen is now rock steady and you can proceed to use the genlock and Amiga just as you used to. The easier way to do this is to start up the Toaster software during the startup sequence and then quit it immediately.

This setup works well as long as all VCRs are time-base corrected and your graphics aren't overscan size. Overscan pics confuse the Toaster into shutting down. Running the Toaster software chews up chip RAM, which is returned to the system in a very fragmented fashion, often enough so that other programs won't run. This can be avoided, however, by opening a CLI window on the Workbench screen and leaving it open. Honest. It's possible that these problems may be addressed by the Toaster's 2.0 software, but I haven't seen the final version yet, so it's hard to say.

In Action

Now here's a little tip for special applications: the Toaster's program output is always syncronized to the system, so its output can also be used as the feed to the genlock. And when the Toaster is deactivated, the program output is whatever source you had last selected for viewing. Now suppose you had a really nice 24-bit rendering from *Lightwave* or *ToasterPaint*, or even a still-store image. Now imagine an Amiga animation running over that as a background! That's a look you cannot get any other way with a single-Amiga system. The possibilities are multitudinous. And don't forget, your video output is as good as your genlock can provide.

I hope that this gives you all what you've been asking for! I hereby place this design in the public domain so you can all do whatever you want with it.

Not Available in Stores!

For the faint of heart and terminally inept among you, this design can be bought preassembled (minus power connections, which you can add) from VidTech International, the makers of the *VideoMaster* genlock (which is, incidentally, an externally powered genlock which works well with this setup).

for AMIGA USERS!

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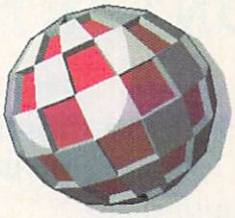

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CONTENTS

Where a Program Begins

by Jim Butterfield

I have long been fascinated by the startup code that is contained in every program. Some aspects of it may be interesting to you, too. Here's a quick guided tour as to what happens in this mystery area.

You'll find a lot of detailed description of startup code in the *ROM Kernel Manual: Libraries and Devices*; as usual, it's hidden away where you least expect it, in the chapter headed 'Workbench.' I don't plan to go into that level of detail here, or even wrestle with the coding. But I hope to give you a hint as to what's happening.

You may need to know a little about startup code. If you try disassembling a program - even one of your own - you'll bump into this stuff at the beginning. At the very least, you need to learn to skip ahead to the main action. And on occasion, you may find the startup code worth a little creative energy.

The following discussion may also help you understand why some programs will run only from CLI, a few will run only from Workbench, and others will run from either.

If you write in assembly code, you might call in the startup code as a 'canned' file, either assembling it together with your program or linking it later. If you write in a higher-level language such as C, startup code is available to be included at link time. There are often options on this: *SAS/C*, for example, offers you a choice of c.o (standard programs), cback.o (for 'background' programs), cres.o (programs to be made resident) and others.

And if you write in BASIC... well, in a sense, you're not writing a program, but creating a data file for the interpreter program to read. So for BASIC, startup code isn't relevant.

Incidentally, 'startup code' is a misnomer; the code in question is there both to start up a program and to shut it down when it's finished.

The Stork Question

The first thing a program usually does is ask the question, "How did I get here?" This question has nothing to do with gurus on mountain tops or on your screen; it may be rephrased as: "Did I get here from CLI or from Workbench?." If a program has been started with a CLI/Shell command, it needs to do certain things. On the other hand, if it was started from Workbench it must do a different set of things.

A program finds out how it was invoked by looking at its own Process

Table 1

Things done at startup:

The program checks to see if it has been started from CLI, by finding its own Process structure, and looking within for a CLI pointer. It's common for the code to open the DOS Library before splitting to CLI- or Workbench-specific coding.

CLI: Get the input and output streams by means of calls to functions Input() and Output(). Get the 'stderr' stream by opening file '*,' the current console window.

Parse the command line to extract any parameters.

Workbench: Wait for, then get, the startup message sent by the system. Set the Current Directory.

Look for parameters in the Argument List.

If input and output streams are needed, open a CON: window and store the appropriate handles.

Termination: when the program is ready to wrap things up, the logic splits again. Before this, the '*' or 'CON:' files may be closed, then the DOS library can be released. Finally: CLI-starts set the return code into D0 and return with an RTS; Workbench-starts reply to the startup-message.

structure. It usually finds that structure by means of a call to the Exec library's *FindTask* function. Within the Process structure, there's a pointer called CLI; if it's zero, the program was started from Workbench.

Figure 1 shows how your program is surrounded by startup code. No matter whether you started from CLI or Workbench, certain jobs are done at the beginning, and then your program gets to run. When the program is finished, the split happens again, and the process is wrapped up in the appropriate way.

There's a third possibility: the program in question was launched by another program. If this is the case, the 'child' program usually has a customized communication with its parent. There are few hard-and-fast rules about this, but we'll touch on the custom-start situation later.

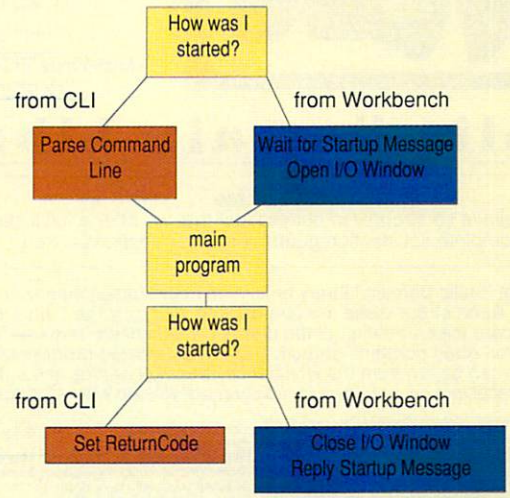

Figure 1. Depending on how a program has been started -Workbench or CLI- a program needs to do certain things, both as it starts and as it terminates.

Starting from CLI

A program that is started from CLI/Shell has a fairly simple set of tasks ahead of it. Input and output streams are already in place; unless they have been redirected, they will be the CON: window of the CLI process. The startup code logs these. It also needs to set aside details on the line typed by the user, which may contain arguments to be extracted.

When a CLI-started program wraps up, it should leave behind a return code. The Return Code value may be tested by a script; in 2.0, it will be copied to local variable $RC.

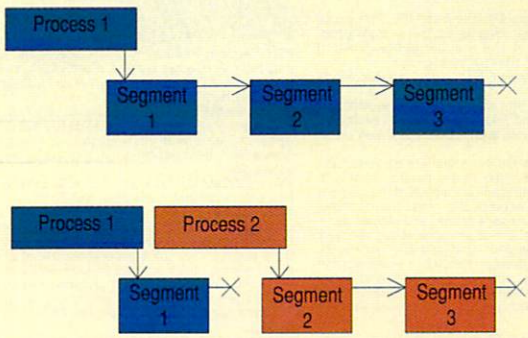

Figure 2. One way for a program to "run in background" is for it to disconnect many of its segments (hunks) and then start a new process using those segments. The original program can then terminate, leaving the "child" to run independently.

Starting from Workbench

A program may be started from Workbench in several ways. The icon may have been double-clicked; it may have been the first in a multiple selection; or the program may have been called as a default tool. No matter: the startup code handles the job in a standard way.

When a program is started from Workbench, it will receive a startup message from DOS. The program *must* read that message before it does anything else, but it *must not* reply until everything is finished and it's ready to terminate.

The startup message contains a number of interesting things, most important of which is the 'argument list.' This gives a list of the icons that have been selected; with multiple selection or 'default tool' invocation there will be more than one argument.

A Workbench-started program will usually have no input or output streams. So the startup code may take on another job: provide a CON: window for program I/O.

When a Workbench-started program terminates, it must close any window it has opened. Then - finally - it replies to that startup message. The reply signals Exec that the program is finished.

Starting a "Child"

A program may start another ('child') program. The child may take two forms: a *task*, which is quick and easy but has limited powers; or a *process*, which takes more effort to create but which has the full powers of a program launched from CLI or Workbench.

There are no fixed rules about child programs. They may not need input or output. They might or might not want to communicate with the parent program, via a message port or ARexx. They might run for only a few microseconds, or might continue indefinitely.

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Featured Disk

WB71A&B: The A64 Package - A very complete Commodore 64 Emulator. Supports any CPU and is fully compatible with WB2.0. Now that you've traded in your C64, don't loose all that software that took you years to compile. This software emulator actually runs faster than a 64! Amaze your C64 friends! Two disk set, counts as two.

New Disks

V04: Video & Anim - CyroUtils splits, makes and gives info about ANIMs. RTAP lets you play large ANIMs on small memory machines. Slate is a nice picture of a slate to use in your productions. Video_DB will keep track of your videotapes.

V03: Image Utils - JPEG converts from JPEG to 24-bit IFF. ImageLab performs many effects from simple averaging to fast fourier transforms. VideoToolsOnTap does fades, colorbar & greybar generation and other useful video functions. TitleGen will do crawling titles.

V02: Stillstore - Used to create the "over the shoulder" graphic inserts ala the 11:00 news.

V01: Graphics - Includes Freepaint, a Deluxe-Paint workalike. Agraph, creates colorful pie, bar and line graphs. Picbase shows reduced versions of all your IFF pictures and tracks where they are in your system.

FD70: SpaceGames - Contains AmiGoids, >finally!< an Asteroids game that takes advantage of the Amiga--totally configurable with great sound and grpahics. In Cosmostruction the object of the game is for each Cosmostruction team to acquire the most points while construction energy ducts between the space station and planetoids.

FD69: MindGames - Had enough of shoot-em up blasting games? Relax and let these 21 games exercise your mind instead of your wrist. FD68: Potpourri - Eternal Rome is a strategic simulation of the Roman Empire including military, diplomatic, political, economic and social factors. Lord of Hosts is a board strategy game for 2 players. In Moonshine, you've got to get the hootch across the state line--a great rolling, scrolling driving game!

FD67: Arcade - Includes Llamatron a well-done 'Robotron' clone. Hate is a *terrific* commercial grade Zaxxon clone with multiple levels/worlds and smooth diagonal scrolling...a 10!

FD65: GameDemo1 - Contains playable demos of Atomino and Turrican II

FD64: Games - Wizzy's Quest - a *great* 50 level game with great graphics, Cubus - a 3-dimensional Tetris type game (rotate and move in 3 dimensions). Husker Du - Colors and pattern rather than shape in this Tetris-esque game; 5 screens and 3 levels of difficulty. Requires Fat Agnus (1 Meg of Chip)

FD62: PomPom Gunner. An extremely smooth and well done World War II gunner simulation. Requires 1 megabyte of memory.

WB104: GrabBag - Q&A Trivia (requires AmigaVision) is a trivia game for 1/2 players...add your own questions to customize the difficulty level! Sysinfo is great for telling you how fast/slow your computer is, what boards are installed, chipsets, etc. AmiGazer will plot stars in the heaven from any position on earth complete with magnitudes and constellation identification.

WB103: Music - Contains 12 *great* Soundtracker/MED music MODules...complete with programmable/shuffle player...8 bit audio never sounded so hot! Two disk set counts as two.

WB102: Communications - Contains the tour-de-force programs NComm 1.921 and VT100-29B. Automatic Zmodem protocols. XPR protocol support, full VT100 emulation. NComm's script language is so powerful it comes with a script file that creates a full-featured BBS system.

WB101: Chemesthetics - is a program that displays molecules as a calotte model. This kind of display contains a certain esthetic attitude, even extremely poisonous molecules like nicotine and dioxine look quite nice.

WB100: CaligariPRODemo - Can't afford $3,000+ to see if the granddaddy of 3D rendering software is for you? Then try the demo version of this renowned modeler that the pro's rely on! No built-in save function, requires 68020+ processor.

WB99: Lifestyles - Includes AGene--family tree program that tracks up to 600 people/marriages/etc, Landscape is a backyard CAD program to create gardens/landscapes, Loom simulates an 8 harness loom; experiment with pattern design in an instant feedback environment.

WB98: Business - Includes BBaseII a nice, powerful database; BizCalc--a personal or mortgage loan calculator with amortization capabilities, Loop--a flowchart maker, Formmaker - design professional looking forms on your Epson LQ-2500 compatible printer.

WB96: Dupers - Contains XcopyIII & Nib which will backup copy-protected programs. FreeCopy removes copy protection from several programs, and SuperDuper will crank-out fast AmigaDOS copies.

WB95: Checkbook Accountant 2.1 This program is definitely commercial grade; we've seen many checkbook programs and this is absolutely the best. Full budgeting, transaction recording and report generation.

WB93: Workbench Extras #2 This disk contains the utilities that Commodore should have shipped with the Amiga; VirusX4.0, Snap, FixDisk (recover corrupt/deleted files), Disk Optimizer (floppy & hard), MachIII (screen blanker, hotkey, mouse accel., macro, clock utility), GOMF (a gurubuster)and PrintStudio.

DD82: Unix - Contains a working demo of Minix - a Unix workalike. Minix is system call compatable with V7 of Unix, supports multitasking and multiple users and many more features too numerous to list here.

DD81: ARexx Tutorial - Includes several sample Arexx scripts and sample programs. Also includes APig; a library that gives you access to Intuition from within Arexx scripts.

DD80: VFont System - A font rendering system that extends the Amiga so that it will be able to use vectorized outline fonts. Fast rendering, rotating, and sizing. Use in your own programs!

Other Great Disks

FD5: Tactical Games - BullRun - a Civil war battle game, Metro you play the role of a city planner. Build wisely and your system will be a success, but poor planning will lead to disaster and financial ruin. Very very habit forming.

FD6: GAMES! - This disk is chock full of games including; Checkers, Clue, Gold - A new slide the pieces puzzle, Jeopard - An enhanced version of Risk, RushHour - Surprisingly addicting, and SpaceWar - Best described as a cross between Combat-Tanks and asteroids.

FD7: PACMAN - This disk contains several pacman type games including; PacMan87, MazMan and Zonix.

FD9: Moria -. This has great graphic controls, multiple spells, similar to Larn and Hack. Play time several weeks!

FD10: HackLite - A dungeon adventure game. Considered a must-have classic. This is the second release of this game on the Amiga. Great graphic interface. Play time several weeks!

FD11: Las Vegas and Card Games - Las Vegas Craps - The best Las Vegas Craps simulation every written for any computer. Contains extensive HELP features, Also Thirty-One,VideoPoker and more.

FD12A,FD12B: Star Trek, The Game - This is by far the best Star Trek game ever written for any computer. It features mouse control, good graphics, digitized sound effects and great gameplay. Counts as 2 disks. Req. 1Mb and two drives (or hd).

FD13: Board Games - contains multiplayer Monopoly, Dominoes, Paranoids, and others.

FD14: Dungeon Master Hints and Arcade Games - DM maps, spells, item location, and hints and more, also on this disk, Hball - an arkanoid/breakout type game, Trix - a Qix type clone.

FD17: Educational Games - This disk includes several games for the younger members including geography, math, science, and word games, also includes Wheel of Fortune.

FD20: Tactical Games - MechForce(3.72); A game that simulates combat between two or more giant, robot-like machines. Simple words can't begin to give you the feel of piloting a 30 - 40 foot tall, fire breathing, earth shaking colossus that obeys your every whim.

FD26:Arcade Games - Marble_slide, this is a truly commercial quality game. Similar to a Lucas game named PipeDreams, excellent playability and entertainment, Mutants , a small version of the arcade game of the same name, also SuperBreakout a pong/arkanoids type game.

FD27: Arcade Games - This disk is loaded with some great games. Includes, Raceorama a great racing car game with ten different courses, MiniBlast a helicopter gunship type clone, Shark in the same class as froger, and SBreakout the original breakout with more.

FD29: Shoot'em up's - WWII - you're the pilot of a WWII plane flying through enemy territory, you've just been spotted, good luck on you mission, SpKiller - try and penetrate enemy lines with this game, and Retaliator - another great game.

FD31: Games! - Air Traffic Control - a good ATC simulation game, Black Jack Lab - a full featured set of card games, ChessTel - play chess with your friend in distant and remote places with this game and a modem, labyrnth - a well done text adventure game (like an infocom game), and MouseTrap - a 3d maze game.

FD32:Flight Simulator - Includes an instrument flight simulator for a DC10.

FD33: Arcade Games - Ffreddy a mario brothers type of game, Gerbils a target practice game, PipeLine a German interpretation of Pipe Dreams, Tron a light cycles version, and wetroids a wonderful version of asteroids with a hilarious twist.

FD35 Omega (v 1.3) - A new outstanding dungeon and outdoors adventure game in a similar vein as hack, rouge, and moria. This version is considerably faster and better that all previous versions. Play time several weeks or months.

FD37a & b:Tactical Games - Empire (2.2w) This great game comes highly recommended. With a full-graphic front end.

FD38:Games - Cribbage Master - A great cribbage game and tutor, Spades - a well done card came, ChineseCheckers - A computer version of this classic, Puzz - a slide piece puzzle game and construction set.

FD39a & b: Star Trek, The New Generation - This is a, completely different version of Star Trek than that found on FD12. This one was created by the German author Tobias. Now with English instructions. Excellent!!! Counts as two disks. Requires 512k memory.

FD44: Game - Mechfight is an out of this world role-playing adventure comparable to hack and moria. The setting, interplanetary colonies and space stations. In your quest to explore the world, take time out to liberate bad guys of their most valuable possessions, engage in a mortal combat or two against robots and alien life forms, pick up a new amiga 9000. Most of all, don't forget to stay alive...

FD49:Chaos Cheats - This disk contains an everything you wanted to know about cheat set for Chaos Strikes Back, including full maps, spells, object locations, super characters and more.

FD50: Submarine Game - Sealance, one and a half years in the making, this is an outstanding submarine tactical game. Commercial quality, highly recommended.

FD52: Classics Games - PetersQuest a well done Mario brothers type of game, Jymbc a two player missile command clone, and Vstank a tank commander game.

FD53: Great Arcade - On this disk is a wonderful implementation of the ever popular classic arcade game Defender. Also contain Air Race a WWII flying ace arcade game, and Psycoblast new creation idea game.

FD55: Arcade - Includes SpaceWar, HueyRaid a well done helicopter arcade game, and PowerPong a great expanded pong game.

FD57: Arcade Games - Includes 2 true commercial quality games. MegaBall is the successor to Ball; features 5 full musical scores, multiple levels and addicting gameplay. Gravity Attack is a psychadellic trip through several different worlds--each distinctly different.

FD58: GAMES! - Includes Steinschlag; a great Tetris clone from Germany with music. SCombat: simulate battle between up to 40 players & monsters. Imperium Romanum: Battle up to 4 players for control of the Mediterranean in this Risk-esque game.

FD59: Game Potpourri - Xenon III is an almost exact clone of the commercial game of the same name...a great shootemup. Crossword will take lists of words & automatically generate word-search puzzles for any Epson compatable printer.

FD60: Games - In Nebula, race over a 3d world to destroy enemy installations. Interferon; a great Dr. Mario clone. Enigma; is it a gameor a puzzle?

FD61: Games - Solitaire; great graphics, plays two versions. Klide; an interesting piece of eye candy. Extreme Violence; 2 player kill or bekilled game. YATC; A Tetris clone with Artifical Intelligence. Genesis; create realistic 3d fractal worlds.

WB4:Telecommumnication - This disk contains several excellent pd communication programs designed to get you on line quickly and easily, Access (1.42) - A very nice ANSI term program based on Comm v1.34, but with the addition of transfer protocols, Comm (1.34) - Last version of one of the best public domain communications programs ever made on the Amiga, Handshake (2.12a) Handshake is a Full featured VT52/100/102/220

WB5 - Fonts #1- Several fonts (35) for the Amiga, also included are five PageStream fonts,and ShowFont - a font display program.

WB6: Video Fonts #2 - ShowFont(4.0) This program allows you to quickly and painlessly view all 256 characters in a typical font. Large AmigaDos system fonts (many up to 56pts).

WB7: Clip Art - This disk is loaded with black and white clip art. Art includes, trees, watches, tools, US and State maps, and more.

WB9:Icons - Truly a multitude of various types and kinds. Also includes IconMiester, IconLab, and others great utilities to help generate icons.

WB10:Virus Killers - The latest and best VirusX(4.0), Kv(2.1), and ZeroVirus III.

WB11: Business - Clerk(4.0), finally a full featured business accounting PD program for the small to medium company. Includes receivables, payables, end of month and uch more.

WB12: Disk Utilities - This great disk is loaded with wonderful utilities for everything including making disk labels, disk cataloging, disk optimizing, disk and file recovery archive and organizing, and all sorts of file manipulation. A must have!

WB13: Printer Drivers and Generator - over 70 different drivers, and if these don't do it, with PrtDrvGen you can make your own.

WB15: Business - This disk contains a spreadsheet, a database, a project/time management program and financial analysis (stocks).

WB16: Business - This disk contains an inventory manager, a loan analysis program, a great calendar/scheduler, a rolodex program, and pennywise a good "Cash Book" accounting for home or office.

WB18: Word/Text Processors - This disk contains the best editors. Includes,TextPlus (v2.2e) a full featured word processor, Dme(v1.35) a great programmers editor with strong macro features,TexED(v2.8) an enhanced Emacs type editor, and a spell checker.

WB20: General Interest - DiskSalv V1.42 a disk recovery program for all Amiga file systems, FixDisk V1.0 another file recovery program with features DiskSalv doesn't have, 3DLook gives a 3D appearance to your WorkBench, Clean V1.01 a program to de-fragment memory, Tracer - trace any part of an image.

WB22: Fonts #3 - Several more great fonts. These, like the other font disks work great with Dpaint and WYSIWYG word processors.

WB23: Graphics and Plotting - Plot (20b) a three dimensional mathematical function plotter. Can plot any user defined function, BezSurf2 - produce awesome pictures of objects one could turn on a lathe. Can also map iff image files onto any surface that it can draw. Now compatible with most 3D packages, and VScreen - makes a virtual screen anywhere, great for DTP .

WB25:Educational - On this disk are two programs that can generate maps of differing types, World Data Base uses the CIA's data base to generate detailed maps of any entered user global coordinates. Also Paradox a great demonstration of Albert Einstein General Theory of Relativity.

WB26: Disk Utilities #2 - MrBackup, KwickBackup - two well done utilities to help with harddisk and floppy disk backups, FileMast - a binary file editor, Labelprinter - Disk label printer with very powerful features.

WB27: Nagel - 26 Patrick Nagel pictures of beautiful women.

WB29: Graphics and Sound - This disk has several different Mandelbrot type programs for generating stunning graphics. Includes, MandelMountains - a realistic terrain generator, Fracgen - generated recursive fractals from user input, Mandelbrot and Tmandel - two fast mandelbrot generators, also Mostra - the best IFF display program to date, will display ALL IFF's including Dynamic HAM, and Sound - a great IFF sound player, will play anything. Try this disk!

WB33:Circuit Board Design - several terrific routines for the electronic enthusiast, Including PCBtool - a circuit board design tool, LogicLab - circuit logic tester, and Mcad (1.26) a well done new release of this PD CAD program, now comes with predrawn common circuit components for insertion into schematics.

WB34: Utilities - Several well done utilities, some will require moderate knowledge of a CLI or Shell for setup, Chatter Box - this one will play any user defined sound after any event (ie. disk insert, mouse click, disk removal...), , Artm - The Amiga real time monitor, gives you full control of the Amiga OS, very powerful program,

Helper - help program to make learning the CLI easier, and more!
WB35: 3d Graphics - This disk contains several neat programs to use with your 3d modeling/raytracing programs 3dFonts - Full vector font set for use with 3d programs, FontMaker - make 3d fonts from any system font, Make3DShape - create 3d shapes from any image, DumptoIFF - create 3d animations preserves pallet, and World3d - a demo program of a front end for use with DKBRender.
WB36: Graphics - On this disk are several programs to create stunning graphical images including, MPath - creates swirling galaxy images, Roses - produce an unlimited number of variations of images that a symmetrically similar to a rose, SimGen - display those spectacular images as part of your workbenck screen, and RayShade - a very good raytracing program, create your own beautiful 3d graphic models with this one!
WB35: 3d Graphics Cont.- World3d - a demo program of a front end for use with DKBRender.
WB36: Graphics - On this disk are several programs to create stunning graphical images including, MPath - creates swirling galaxy images, Roses - produce an unlimited number of variations of images that a symmetrically similar to a rose, SimGen - display those spectacular images as part of your workbenck screen, and RayShade - a very good raytracing program, create your own beautiful 3d graphic models with this one!
WB37: Educational - Educational games and puzzles that cover math, geography, spelling, and books. Ages 6 - 15
WB38: Plotting and Graphics - Plotxy is the most powerful full featured plotting package. Used by many colleges and universities. A welcome addition to our library! Highly recommended. Plans - a incredibly well done Computer Aided Drafting program, very full featured. Tesselator - a program that helps generates fantastic looking, recursive M.C. Ecsher type pictures.
WB39: Music - Intuitracker is a German offering of an exquisitely well done program that allows you to play music on your Amiga with CD like controls. Lets you strip out music from your favorite games or others and include them in your music library.
WB40: Music - "CD on a disk", 90 minutes of modern music on this well presented collection. Requires 2 drives or HD.
WB41: Music - MED an incredibly well done, full featured music editor. Create your own stunning music directly on your the Amiga. Similar to SoundTracker but better. Very powerful easy to use program. Ver. 3.10.
WB43:Business - This disk contains AnalytiCalc - probably the most powerful spreadsheet program on the Amiga. A full featured spreadsheet with many features expected in a commercial package. Requires 1.2 MB of memory!
WB46:Clip Art - HighRes clip art with the following motifs - embellishments (borders, dodads ,...), people, and transportation.
WB48: Clip Art - HighRes clip art with the following motifs - Holidays, music, medical, and misc.
WB49abc:Animation Sampler - On this three disk sampler set (counts as two disks) are some of the best animations that have been created over the last three years. Several examples of "Movie" type animations some with spectacular raytraced reality (coolroby, watch, spigot and egg). Also several european style or "Demo" animation with incredible graphics and outstanding electronic music (akrilight, copersine, doc, dps2010, impact, and logodemo). These truly show off the creative edge of an Amiga!
WB50: Animation - Seven of the best european style animations or "Demos", including - scientific 451, subway (a U.S. entrant, also our favorite), sunride, thrstdemo, tnight, waves, and woow.
WB53:Graphics - Raytracing programs generate absolutely stunning realistic looking planes, rockets, buildings..., and surreal images often consisting of highly polished spheres and objects. C-Light is the most powerful EASY-TO-USE of it's kind we have seen to date. This is easily better, and more full featured, than similar commercial programs costing in the hundreds of dollars. Also, sMovie - a full featured video text titler similar to ProVideo, Broadcast Titler. Great video scrolling, wipes, special effects, and more...
WB54:Printing - This disk contains several routines to help with the chore of printing. Includes Gothic - Finally a Banner printer for the PD! PrintStudio -a well implemented all-purpose printer-utility with a very comfortable graphic interface and many advanced features, Lila - with ease, print ASCII files to a PostScript printer, and many more.
WB55:Application - XCopyIII - a full featured disk copier, make backups of write protected disks. RoadRoute - find the quickest route from one city to another, highway description included, Diary - a diary program like "Dougy Howard M.D", Cal - a calendar program, Magman - a database tailored to maintain records on articles and publications.
WB57:Animation - This disk has several "Demo" style animations, Including, Blitter, Lolly, Sun5, vertigo, vortex, and xenmorph.
WB59:Business - contains a great, very full featured stock market technical analysis and tracking program, also an appointment calendar, and more.
WB61:Intermediate Utilities - Includes programs to help to drasticaly decrease flicker in interlace and hi-res modes (antiflick), an Atari-st emulator, an eprom programmer, turn your amiga into an eight channel digital data analyzer or ocilloscope, and more.
WB62:Midi Utilities - Several useful midi utilities including, programs to transfer to and from several music programs to midi, a midi sysex handler, a midi recorder with timebase, display midi info, file sequence player, and a few scores.
WB63:Disk Utilities #3 - Several highly recommended programs to aid in removing duplicate files from your hard drive, performing file backups, Binary editing, fast formatting, file recovery, disk track recovery, and forced DISK VALIDATION of corrupt disks.
WB66:Icons #2- Lot's of neat icons. Also, several wonderful programs that to let you create your own icons, modify and manipulate icons and info structures.
WB68:Music Utilities - several good utilities for the Amiga music enthusiast. Includes, Noisetracker - a great music creation program, Sonix2MOD - converts sonix to .mod files which then can be used by noisetracker, soundtraker, and MED, SpeakerSim - a speaker design tool demo, Wondersound is an additive harmonic instrument design tool with a separate envelope design window and 16 relative harmonic strength and phase angle controls.
WB69: Music - This disk has over 90 minutes of classical and modern electronic music for you Amiga.
WB70:Desk Top Pub - Atcp - transfer Macintosh screen fonts, Mac or IBM format .AFM metric files, to Amiga screen fonts and PPage .metric files. With this program open door to the libraries of Adobe and PostScript type!, Calendar - month templates in PS form, Post - a full featured post script file display and print utility.
WB75: Music - over 100 instruments files (.inst) and sample sound files (.ss) for your music programs.
WB76: Applications - This disk contains Stichery - a often requested knitting design program, Lotto - a rather complete lottery tracking and prediction utility, SSS - this screen capture program can grab almost any screen including games, Today - a personal calender, Tarot - fortune teller, and Grammar - grammar checker.
WB78: AV - On this disk are two Amiga Vision programs (bubbler, sync) written by Lou Wallace, chief technical editor of Amiga World. These programs are marvelous examples of how too's with AV.
WB79: Home & Business Accounting - Includes Ckbacct - the most complete checkbook accounting program going, LCDCalc - this well done calculator has a very large display and operates from the keyboard or mouse, Mileage master - monitor your automobile mileage with this mileage log, Grammar - a grammar checker, and Worldtime - find out what time it is in up to 50 global cities.
WB81: Great Applications - DataEasy a very easy to use, database program. Don't let the ease of use fool you, this is a very full featured database program including full printer control for address labels and mail merge applications. Also includes, TypeTut a good typing tutor, RLC a full featured label printer, Banner, a multi-font banner maker, and Budget a home accounting in a program. Highly recommended.
WB82:Animations - Four full length, well done "movie" style animations. Including, Coyote, JugglerII, GhostPool, and Mechanix. Two disk set, counts as one!
WB83: Computer Art - this disk has some of the best Amiga generated computer art that we have collected in the past 5 years.
WB85: Graphics - Contains several programs for manipulating 24 Bit color images (ham-e) and a rather nice Iff Image processing package.
WB86: Amiga Vision - Contains the Centurion Press, An Amiga newspaper by Lou Wallace.
WB88abc: The Complete Bible - A three disk set, with the entire text of the New Testament and Old Testament. Great search utilities. Three disk set, counts as three.
WB90: Rippers, Strippers and Beats - For the Amiga music enthusiast, this disk contains many programs designed strip music from your favorite games and programs. Music can then be played with your favorite Pd Music program. Also contains Drums, a very nice drum machine. This disk can require moderate knowledge of the CLI.
DD45: AREXX Programs - This disk contains several useful arexx programs and examples, PopCLI4 - The latest of a must have utility.
DD47: Pascal - This disk contains everything needed to program in Pascal. Includes, A68k (1.2) 68000 assembler, Blink linking software and PCQ (1.0) a modest Pascal sub-set compiler.
DD49: C Compiler - contains zc(1.01) fully K&R, zcc(1.0) front end, A68k(1.2) assembler, Blink linker.
DD50: ARexx #2 - a must have set of tutorials on ARexx and several useful examples and utilities for ARexx development.
DD51: Circuit Analysis - Aspice (2.3) A full featured program for electric circuit analysis.
DD52: Scientific - Includes Elements - an incredibly well done periodic table program with source, Scientific plotting - over 600k of Lattice C source routines that can be included in your own programs.
DD54: Compression - This disk is loaded with all of the best file compression programs and aids for the Amiga. Many of the programs can be used by the new user. Includes Arc(2.3), Lharc(1.0), Lhwarp(1.03), Pkax(1.0), PowerPacker(2.3a) a must have by all, Zip(1.0), Warp(2.04), and Zoo(2.0). Also IFFcrunch an excellent compression for IFF files.
DD55: ARP - On this disk you will find the complete ArpRel3.0 release including the full user docs, the full Developers guide. ARP is the official AmigaDOS Resource Project (ARP) release 1.3. ARP makes many improvements to AmigaDOS and makes your system easier to use from the CLI.
DD57: Advanced Utilities - Msh - like Cross-dos, copies files to and from MS-DOS, Pal-NTSC - convert any pal program to NTSC and vice versa, Also several utilities that improve your startup-sequence, plus 25 more programs.
DD62: Basic and Xscheme - Cursor - a full featured Amiga Basic compiler, sbasic and ftext - several wonderful routines to help in basic programers, and Xscheme - an interpreted object oriented language.
DD64: Amiga Programmers Manual - The fully comprehensive Amiga programming manual with source code examples and easy to understand tutorials!
DD65: C Tutorials - Several well done tutorials on how to program the Amiga. Includes tutorials and working examples on Device drivers, IFF reads and writes, Sound implementation, Arcade game design and implementation, Double Buffering, and others. A must have for Amiga Programmers.
DD66: Programming ToolBox - Many programs to help in your development efforts (most for C some for basic) Includes programs to generate requesters, an incredible spritemaker toolbox, to greatly aid compiling, convert DPaint brushes to C structures, a great library manager, and many more wonderful time savers!
DD69:Advanced Utilities - SerNet and ParNet - Connect two Amiga's and share resources, MemMonitor - Similar to WFrag but greatly improved, Selector - put menus on your workbench screen, and more.
DD71A&B:C Compiler - This disk contains DICE, Matthew Dillon's full featured, powerful C compiler and environment system. 2 Disks, counts as 2.
DD72: VT Emulators - Contains three powerful full featured VT emulators, with many advanced features including Kermit, Xmodem and Tektronix protocols. VaxTerm, VLT, and more.
DD77: Fortran - Contains a full featured FORTRAN77 environmental development system. Also contains EzAsm a strongly macro dependent 68000 assembler.
DD78: Menus & System Enhancements - Several neat programs to aid in launching programs from special icons (Next computer style), adding WorkBench menus and more. Also contains many useful programs to determine operation system configuration, memory usage, load and many other important utilizations.
D79abcd: Amiga C Tutorial - This is the most comprehensive C language, Amiga orientated set of tutorials available. Includes full working examples, source code and an incredible set of lessons. Included are full discussions and examples of every topic on Amiga programming. Four disk set, counts as three.

The possibilities are endless. But I'd like to concentrate on two special cases of interest: debuggers, and programs designed to run in 'background.'

Debuggers

Many *debugger* programs work by acquiring the test program as a 'child.' The user might type a command such as *DEBUG KIBBLE X*.

This would cause program DEBUG to start. In turn, DEBUG would load in program KIBBLE, using the DOS library's *LoadSeg* function. When the user signals to DEBUG that the test program may be started, DEBUG might set process KIBBLE in motion with the DOS function *CreateProc*, or alternatively might just call the code as a subroutine. In either case, a modified command line, *KIBBLE X*, would be supplied, so that program KIBBLE would see its 'usual' input.

A debugger could also fake a Workbench startup, but this is more complex; I don't know any debug packages that do it. The 'fake Workbench startup message' is popular for many other parent-child startup communications, however.

Background Programs

Many programs, such as POPCLI and XOPER, wish to run in 'background.' That is, they want to disconnect completely from the starting facility.

That's not as simple as it seems at first. You might think that a program called THINK would be 'spun off' as a separate process by commanding *RUN THINK*. Yes, but it's not enough: the input and output streams are still hooked up to the CLI's console window. Next step: will *RUN >NIL: <NIL: THINK* give process THINK complete independence? Usually, but not always; and the line becomes clumsy for a user to type.

There's a better way. It seems technically complex, but like many things, you get used to it. And as we mentioned before, some compilers will supply canned code to do the job. The program 'cuts off its own head.' Figure 2 shows the method. The process starts up as a program made up of several *segments*, memory blocks also called 'hunks.'

In the first segment, there's code that finds the link between segments 1 and 2. It snaps that link. That leaves the process as a one-segment program, still running; the remaining segments are now 'loose.'

The now-tiny program continues. Using *CreateProc*, it starts up the chain of following segments as a new process. Then the original program terminates. It vanishes, and its single segment is reclaimed by the system. Meanwhile, the Amiga is now running a process which is completely separated from its humble origins. ■

What's New?

An updating file copier in ARexx

by Nick Sullivan

Let's say that you and a friend are collaborating on a large, ongoing project with your Amigas, and that the project involves both of you creating and changing files in your local copies of a master project directory. The files could be components of a software product, a newsletter, a business presentation, or what have you - the important thing is that you are each making changes that at some point have to be integrated, though neither of you is actually modifying the same files.

From time to time, you have to update the master directory by copying over the revised (or newly-created) files you have each made. One thing you each have to avoid, of course, is accidentally copying older files along with the newer ones, for these could overwrite files the other has revised. As an additional complication, we should note that some of the files may be in subdirectories at various levels of nesting. What is the best way to proceed?

This is an easy puzzle, for there are several approaches that would work. An obvious one would be to identify the changed files and copy them individually. That sounds simple enough, espe-

```
/* RENEW - Copy more recent files from one directory to another,
including subdirectories. */
IF arg() = 0 THEN DO
  SAY "Renew: Recursive updating file copier."
  SAY "Usage: rx renew <dir1> to <dir2> [test] [quiet]"
  SAY "TEST mode : copy commands are displayed but not executed."
  SAY "QUIET mode: no display except in case of error."
  EXIT
  END
CALL ADDLIB('rexxsupport.library', 0, -30)
PARSE ARG src "to" dst
/* The option keywords TEST and QUIET are allowed following the
<dst> directory in the command line. */
optkeys = "TEST QUIET"
testmode  = 0
quietmode = 0
DO i=1 TO WORDS(optkeys)
  n = FIND(UPPER(dst), SUBWORD(optkeys, i, 1))
  IF n > 0 THEN DO
    SELECT
        WHEN i=1 THEN testmode  = 1
        WHEN i=2 THEN quietmode = 1
        OTHERWISE
            SAY "Option" i"?"
        END
    dst = DELWORD(dst, n)
    END
  END
IF testmode THEN
  quietmode = 0
src = STRIP(src)
dst = STRIP(dst)
IF WORD(STATEF(src),1) ~= 'DIR' THEN DO
```

continued . . .

cially if the number of files is not large. But it immediately raises a subsidiary problem: how can the changed files be identified? Perhaps you can rely on your memory for this, or - if you're the organized type - on your project notes. For myself, I don't regard either of these resources as dependable: I want verification that my notes are complete or that my memory is correct.

Which files have changed

Picking out the changed files isn't too hard. An obvious, exhaustive approach is to directly compare the matching files in each directory to determine, with some tool appropriate to the file type, which have been revised. If they are picture files, view them side by side. If they are programs, compare their version numbers. If they are text documents, either examine them in an editor or use a utility (such as the Unix-derived *diff* tool) to display any differences between them.

This manual method sounds like a lot

```
  SAY 'Invalid source directory "'src'"'
  EXIT
  END
IF WORD(statef(dst),1) ~= 'DIR' THEN DO
  SAY 'Invalid destination directory "'dst'"'
  EXIT
  END
CALL UCOPY(TRIM(src), dst)
EXIT

/* UCOPY - perform an update copy from src to dst, where src and
dst are corresponding directories. Subdirectories of src that
have no equivalent in dst are copied whole (with Copy all).
Subdirectories belong to both src and dst are given recursively
to ucopy itself. */
UCOPY: PROCEDURE EXPOSE testmode quietmode
  PARSE ARG src, dst
  /* Let showdir return its name list with linefeed separators,
then translate the linefeeds to spaces (so names can be treated
as words) and spaces to the presumably unused character '80'x,
so that names with spaces will be seen as a single word. Any
spaces are later restored to the name before use. */
  srcdirs  = TRANSLATE(SHOWDIR(src,'d','0a'x),'80'x,'200a'x)
  srcfiles = TRANSLATE(SHOWDIR(src,'f','0a'x),'80'x,'200a'x)
  DO i=1 TO WORDS(srcfiles)
    w = WORD(srcfiles, i)
    t = WORD(STATEF(MKPATH(src, w)), 1)
    IF t = 'FILE' THEN
        CALL UCOPYFILE(w, src, dst)
```

continued . . .

of work, though - let's try to do better with a more automated approach.

Solution #2: Since most file revisions result in either a larger or (less often) a smaller file, compare the file sizes in the two directories and assume that only those with different sizes have been revised. Using the AmigaDOS *List* command, this isn't very hard to do, and it saves all the bother of looking at the actual contents of the files.

But the underlying assumption is not very safe. A small but significant fraction of revisions does *not* affect the file size: this method of identifying changed files would overlook many text documents with spelling corrections, spreadsheets in which a few cells have been modified but none added or removed, pictures in which only the palette has been changed, and so on.

It appears we must look for yet another method. Is there a solution #3?

Yes, provisionally. If the directory in which the revisions have since been made was created with the AmigaDOS *Copy* command, and either the *Clone* or the *Dates* option of that command was used, the 'datestamps' of the copied files will be identical to those of the originals. Modifying a file, however, will set its datestamp to the system date at the time of modification. Even if the size of the revised and the unrevised files are identical, their dates will differ.

Since there is no good reason *not* to use *Clone* when copying files for everyday use, let's assume that it has been used in the case under consideration. (And if you haven't been using *Clone* yourself, I recommend that you should.) For if that stipulation is met, we have answered one part of the puzzle: we now have a sure-fire means of picking out the revised files.

It would still be nice if we could find some way to get a list of the changed files automatically, rather than by a visual comparison of listed datestamps. The *List* command can be of some help in this, by showing only those files datestamped on or after a given date. For instance, if you know that all the files revised in your *project* directory were changed on or after, say, March 17, 1991, you can get a list of them with:

```
list project since 17-mar-→
1991 all
```

```
    ELSE IF t = 'DIR' THEN
        SAY '"'mkpath(src, w)'": incompatible objects'
    ELSE
        CALL COPY('"'mkpath(src, w)'"','"'dst'"')
    END
  DO i=1 TO WORDS(srcdirs)
    w = WORD(srcdirs, i)
    d = MKPATH(dst, w)
    t = WORD(statef(d), 1)
    IF t = 'DIR' THEN
        CALL UCOPY(MKPATH(src, w), d)
    ELSE IF t = 'FILE' THEN
        SAY '"'mkpath(src, w)'": incompatible objects'
    ELSE
        CALL COPY('"'mkpath(src,w)'"','"'d'" all')
    END
  RETURN

/* COPY - call AmigaDOS Copy command to copy from src to dst.
The arguments may be any source and destination objects Copy
will accept. Copy options like ALL may also be used. If testmode
is set, the copy command will be echoed, but not performed. If
quietmode is set, there will be no output (unless Copy
encounters an error). */
COPY: PROCEDURE EXPOSE testmode quietmode
  PARSE ARG src, dst
  IF testmode THEN DO
    IF ~quietmode THEN
        SAY "copy clone" src dst
    END
  ELSE IF quietmode THEN
    ADDRESS COMMAND "copy clone quiet" src dst
  ELSE DO
    ADDRESS COMMAND "copy clone" src dst
    SAY LEFT(dst" ", 48, ".") "copied"
    END
  RETURN

/* MKPATH - combine a directory path and a file into a complete
path specification, by concatenating the two names with, if
necessary, an interpolated slash. Also restore spaces to the
names by translating any '80'x characters (see ucopy). */
MKPATH: PROCEDURE
  path = TRANSLATE(ARG(1),,'80'x)
  IF LENGTH(path) > 0 THEN
    IF POS(RIGHT(path,1),":/") = 0 THEN
        path = path"/"
  RETURN path || translate(arg(2),,'80'x)

/* UCOPYFILE - get the datestamps of the given files using
statef, and convert them to a standard form for comparison. Copy
the files only if the src file is newer than the dst. */
UCOPYFILE: PROCEDURE EXPOSE testmode quietmode
  src = MKPATH(ARG(2), ARG(1))
  dst = MKPATH(ARG(3), ARG(1))
  PARSE VALUE STATEF(src) WITH . . . . d m t .
  stime = d || RIGHT(m,4,'0') || RIGHT(t,4,'0')
  PARSE VALUE STATEF(dst) WITH . . . . d m t .
  dtime = d || RIGHT(m,4,'0') || RIGHT(t,4,'0')
  IF stime > dtime THEN
    CALL COPY('"'src'"','"'dst'"')
  RETURN
```

end

With clever use of an *lformat* argument to *List*, along with output redirection, you may even be able to devise a CLI command line that will generate an AmigaDOS script to invoke *Copy* automatically. You will not be able to do this, however, if any revisions took place later on the same day recorded in the original datestamp, if that day is not today. The reason for this is that *List since* will accept either a date argument (*since 17-mar-91*) or a time argument applying to the current day (*since 15:23:35*) but not both.

The ARexx Approach

It is often the case that tasks that are difficult or impossible for AmigaDOS scripts can be handled with comparative ease by ARexx. To approach the present problem, we need to able to find out three pieces of information:

- The names of all the files and directories in a given directory;
- The datestamp for a given file name;
- Whether a given name is that of a file, of a directory, or neither.

Two functions from the ARexx support library, *showdir* and *statef*, can tell us everything we need to know. *Showdir* is invoked like this:

```
names = showdir(dir, [mode],→
[separator])
```

The *mode* argument defaults to 'a,' indicating that all names, those of directories *and* those of files, should be returned. The other modes, 'd' and 'f,' restrict the list to objects of one type only. The *separator* argument, for which the default is a space, specifies the character to be used between the names in the list. Since the space character is quite often used within file names, it does not make a very good delimiter. A common alternative choice is the linefeed character, represented in ARexx by '0a'x. For instance, the following ARexx instruction will list the directories contained in your *SYS:* directory, one per line:

```
say showdir('sys:', 'd', '0a'x)
```

The *statef* function is used to obtain information about a single file or directory. It is invoked like this:

```
info = statef(name)
```

The *info* returned consists of several bits of information about the given file or directory, packaged into a single string. The format of the string is a number of fields separated by spaces:

type bytes blocks bits **day min tick** comment

Programmers familiar with AmigaDOS may recognize this as the contents of a *FileInfoBlock* structure. For our present purposes we need only be concerned with the *type* (either 'DIR' or 'FILE'), and the *day min tick*, which together constitute a datestamp. These fields can be extracted from the string very easily with the ARexx *parse* instruction.

These simple building blocks are just about all we need to create an update utility in ARexx. The utility will search through a given 'from' directory and all its subdirectories for files that are more recent than the corresponding files in

the 'to' directory, and copy them across. Since the actual copying is done by the usual AmigaDOS *Copy* command, all the usual facilities (like *Copy Clone*) are available.

Renew and Recursion

Traversing a directory 'tree,' as the *Renew* utility does, is a classic application for *recursion*, the programming technique in which a function re-invokes itself in order to do the same processing at a 'deeper' level. Here it is the function *ucop* that invokes itself whenever a subdirectory is to be processed. Although recursive algorithms may look suspiciously tricky until you're used to them, they are perfectly adapted for handling certain classes of problem in a natural and elegant way. The fact that ARexx readily allows for recursion is one of its many strengths. ■

AmigaDOS V2:
Making the Transition

by Chris Zamara

The major new version of the Amiga's operating system, Version 2, is finally available as a set of replacement ROM chips. The expectation, of course, is that everyone will eventually switch to this new version and the old Version 1.3 will become a historical footnote like V1.0 is today. But how quickly this happens depends on how urgently users feel the need to upgrade. And once you do upgrade, what will change? Will you have to learn how to use the Amiga all over again?

What is V2?

The original operating system of the Amiga was predictably called 'version 1.0' and it had quite a few bugs. Fortunately, it was quickly replaced with V1.1, which fixed the worst problems. Version 1.2 continued fixing bugs, and added a slightly new look and some new Workbench features. The latest of the version 1 revisions, V1.3, included mostly external changes like the AmigaDOS command shell, new printer drivers, new icons, etc. The internal workings of the operating system were left largely undisturbed.

Version 2.0 changes all of that: it is a major rewrite of the entire operating system. For software developers, V2 finally brings the kind of facilities that the Amiga has lacked, and which made Amiga software development so difficult and time-consuming. It also supports a new 'object-oriented' form of software support, making it easier for software developers to develop and manage programs with very complex user interfaces.

Besides the major internal change, on the outside there's no mistaking V2 for any of the earlier versions. To the user, AmigaDOS has a radical new look that gets away from the 'cute' style and looks more serious and businesslike. This look is not only seen on the Workbench screen, but thanks to a new standardized set of controls, conforming applications will sport the V2 look as well. Like the Macintosh or *Microsoft Windows*, AmigaDOS V2 encourages the use of standard controls so you can learn the basics and then use any application right away.

While previous operating system upgrades involved simply buying a few new disks, V2 requires changing the ROM chips in your machine and must be dealer-installed. This, plus the large binder of documentation supplied with the upgrade, makes the V2 upgrade more costly than any of the previous ones. On the other hand, if you were to calculate the cost on a dollar-per-improvement basis, it's the least expensive upgrade by far. Amiga 1000 owners (are there any still left?) cannot upgrade to V2 without using special adapter hardware to connect the dual ROM chips.

Software compatibility

The most obvious reason for users to upgrade is to be able to use software that requires AmigaDOS V2 in order to run. During the current transition period, most software will still work under either operating system, but as developers begin to take advantage of the vast array of new facilities in V2, it will become practical to develop for V2 exclusively even if it means excluding the users who haven't upgraded yet. As more software products become V2-exclusive, more users will be forced to switch. Like it or not, that's progress, and in the long run the Amiga and its software can only improve if everyone upgrades as new operating system releases become available.

Some software that doesn't require V2 is still designed to work with it, and may provide more features or more convenience under the new operating system. Look for the official 'V2 compatible' sticker on the box to see if a program is designed with V2 in mind.

But what about a third category of software - older programs that came out before V2 was available to developers? Will the program still work? The quick answer is: probably. In theory, every 'well-behaved' program that worked under V1.3 should work under V2. In fact, Commodore took great pains in developing V2 to avoid making changes that would 'break' most software. There are exceptions, though: programs that 'broke the rules' or just bent them by doing things that were not well documented or supported in previous versions. For the most part, this means games or other specialized programs that bypass the standard operating system calls in order to push the machine to its limits. When you upgrade to V2, check with the software publisher to see if a V2 upgrade for the software is available. Most software companies should have V2-compatible versions of their products available now, and may provide these to registered users at a nominal cost. If you plan to keep buying software for your Amiga, you'll need to do the V2 upgrade sooner or later anyway. It's probably best to upgrade to V2 even if you need to get new versions of any incompatible software. If you stick with 1.3, you'll severely limit your choices with software titles in the future.

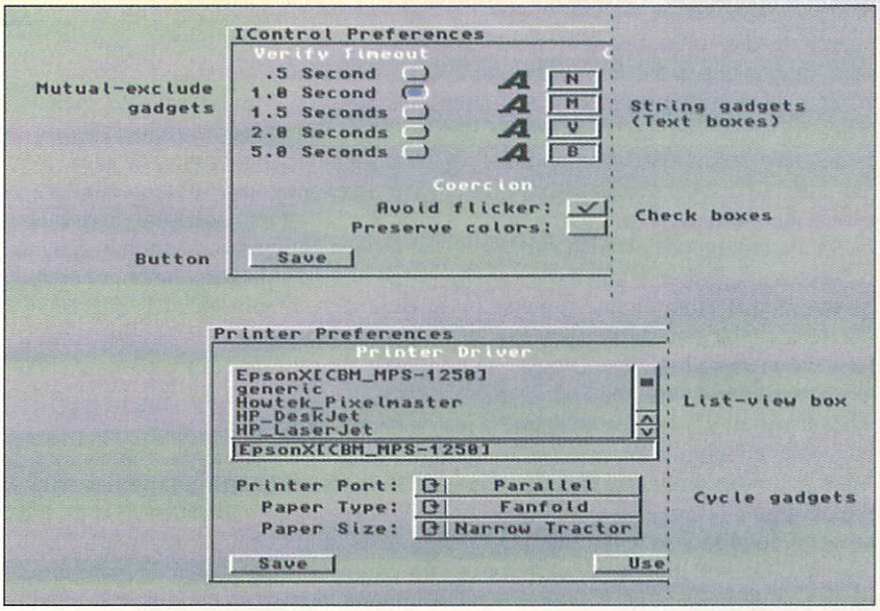
What's changed

V2 has enough new features to fill a book, so I won't attempt to list them all here. The most major and most important features aren't things that the average user will directly notice, since a great deal goes on 'behind the scenes.' The behind-the-scenes changes result in the kinds of enhancements that are

felt indirectly, since the software developer has new tools and capabilities to work with. The kind of improvements that are sure to follow in V2 software are hard to state specifically: programs will have more features, will work faster, do more with less memory, will be less likely to crash, and easier to use.

What I'll try to point out here are a few things that you notice right away and will change the way you use the Amiga, even if these features may be trivial compared with the major underlying changes.

Workbench: the trusty but rusty old Workbench has been given an overhaul that makes the Statue of Liberty restoration look like a minor dust-off. The look, of course, is different, with 'raised' icons and new colors, but that's just the start. There are enough new capabilities to make the Workbench useful enough to replace all your disk utility programs. You can list files by name instead of by icons, show files that don't have icons, and 'drag-select'



A portion of the 'IControl' and 'Printer Preferences' program windows, showing a few of the new V2 standard control types. As more applications use these new standard controls, the user won't be plunged into a whole new environment with each new program he or she uses.

multiple icons. The entire Workbench can be used on an ordinary window that you can pop to the front or size at will. A nifty bit of display magic lets you make a 'virtual' Workbench screen larger than can be displayed on the monitor; the display scrolls smoothly to reveal the entire workspace as you move the mouse pointer to the edges of the screen. Patterns and fonts can be selected in Preferences to make everything look just the way you like it. New menu items like 'New Drawer' and 'UnSnapshot' give you the control that was always sorely lacking. Another convenient feature is the new 'WB-Startup' drawer that automatically runs the programs placed within it at boot time; no need to modify the Startup-Sequence to add that handy clock or other background utility.

Software: the provided programs are a model of the new V2 look and feel, and are not only a joy to use, but in many cases add a great many features to their V1.3 counterparts. The icon editor, for example, is a miniature paint program that can import and export IFF picture files. Thanks to a new capability of V2, you can load an icon into IconEdit by simply dragging it into the program's window! Preferences has been divided into separate programs for each category, and each is easy to use and complete. A number of background 'commodities' programs like a screen blanker and key shortcut manager are provided, each operated individually or through a central 'commodities exchange' program.

Gadgets and controls: perhaps the most important benefit of V2 is its support of standard controls. In previous Amiga software, other than windows, menus, text gadgets and a few other standard Amiga controls, every application was pretty much on its own. V2 introduces a number of standard controls like 'radio buttons,' check boxes, lists, and others that allow every application to use a set of well-defined standard controls that the user is already familiar with. This should help to give all Amiga software a consistent look and feel, making it easier to learn a new program. It also makes it easier for software developers to design and implement a new program, which should result in higher software quality and reliability as well as improved features and capabilities.

ARexx: The ARexx language is now included as part of the operating system, instead of being a third-party product that users needed to purchase separately. This makes it even more worthwhile for software developers to support ARexx in their programs, since everyone can make use of it. ARexx is an easy-to-use and powerful language that works directly with software applications, letting you custom-program your wordprocessor, spreadsheet, terminal program, or any program that has ARexx support built in.

Shell: The AmigaDOS command shell includes a number of built-in (as opposed to disk-loaded) commands, and the common commands like Copy, Rename, Assign, etc. have been expanded in their functionality. The integration of wildcard pattern matching, environment variables, and a number of other facilities makes the V2 Shell more powerful, faster, and less tedious to use.

Fonts: The standard Amiga bitmap fonts are now scalable to any size, and although scaled bitmap fonts produce imperfectly formed characters, the ability is useful for WYSIWYG (What You See Is What You Get) page layout programs where text size is important. For better results, Compugraphic outline fonts are also provided. These fonts can produce attractive, readable text scaled to any size and resolution, for the screen or for printing.

Learning to use it

Fortunately, the inclusion of all these new features in the operating system doesn't mean you'll have to learn how to use the Amiga all over again - not that it took very long in the first place. Other than the replacement of the two window depth-arrangement gadgets with a single one and the addition of a new 'zip-window' gadget to expand or shrink a window, the basics of using windows and the Workbench hasn't changed. The new standard gadget types are simple to use, and once you see how they work (playing with the Preferences programs is a good way to experiment), you'll be comfortable with any new software that follows the V2 style guidelines. And since most applications will eventually standardize on font requesters, file requesters, and the use of other system resources, you'll be doing a lot less flipping through user manuals as you go from program to program.

Other than the one-time installation of the operating system itself and new versions of your software applications, probably the only extra effort V2 will require is the time you'll undoubtedly spend playing with the new Workbench, programs, gadgets, screen modes, fonts, icons, commands . . . etc. ■

Adding an ARexx library

It looks simple, but there's a catch . . .

by Chris Zamara and Nick Sullivan

If you program in ARexx it's likely that you've used some of the handy functions contained in 'rexxsupport.library,' the function library supplied on the ARexx disk. The only problem with this is that the library must be added before calling any of the functions within it. A good ARexx script adds the library if it hasn't been added yet, and in that way avoids failing when the library is not present.

The usual way to do this is by calling ARexx's built-in ADDLIB function, but what happens if the library file can't be found or the library can't load for some other reason? Most scripts don't handle this properly, because they simply check to see if the library name has been added to the library list. ADDLIB will add any library name you specify to the internal library list, whether the library exists or not. The library is only loaded - perhaps much later - when an unknown function is called and ARexx goes through the library list trying to match the function name.

The following short script defines a function called AddARexxSupport that adds 'rexxsupport.library' and fails immediately if the library cannot be successfully loaded. It does this by calling a function in the library (NULL, which merely returns a zero pointer) after adding the library name to the library list. The function call forces ARexx to attempt to load the library, and if the load is not successful, a "Function not found error" will result. AddARexxSupport traps this error using SIGNAL ON SYNTAX, and returns 0 if the function call fails, or 1 if it succeeds.

If you pass AddARexxSupport the argument 'FAIL,' it will print an error message and terminate the script instead of just returning zero for failure. Simply put the command CALL AddARexxSupport('FAIL') at the beginning of any script that needs to use functions in the support library. A similar technique, of course, can be used for adding any other function library, like 'rexxmathlib.library,' 'rexxarplib.library,' etc.

This is the same code we use in some of the example scripts on the companion disk for our new book "Using ARexx on the Amiga", published by Abacus. ■

```
/* AddRexxSupport - From the companion disk for the Abacus book
"Using ARexx on the Amiga." You can use this to check/add
'rexxsupport.library' and verify its existence before trying to
call functions it contains. That way the script won't bomb out
ungracefully and unhelpfully with either 'Function not found' or
'Host environment not found.' If you call this with arg(1)='FAIL',
it will SAY a message and exit the script if the library is not
available. Otherwise the availability of the library will be
reflected in the boolean return value (1 = OK, 0 = no library). */

ADDREXXSUPPORT: PROCEDURE
  SIGNAL ON SYNTAX
  IF ~SHOW('l','rexxsupport.library') THEN
    CALL ADDLIB(z'rexxsupport.library',0,-30)  /* add to library list */
  CALL NULL()                                 /*   force lib to load */
  RETURN 1

  SYNTAX:
    IF ARG(1)='FAIL' THEN DO
        SAY "Library rexxsupport.library is unavailable."
        EXIT
        END
    ELSE
        RETURN 0
```

CD-I versus CDTV

. . . continued from page 26

sportscasters adds to the realistic feeling and adds an element of humor. Unfortunately, the gameplay itself isn't very good. Club selection is frequently inappropriate and manual selection is a pain, the power bar moves far too fast, and putting is inconsistent and awkward. All that doesn't matter, though: the game is standard-setting. CD-I developers will certainly learn (probably from Amiga and CDTV) how to make their games more playable and this is, after all, the first.

Multimedia Extravaganzas are what shows off CD-I best. *The Renaissance of Florence* and *Harvest of the Sun: Vincent van Gogh Revisited* are the equal, and frequently the better, of anything you'll see on PBS. Putting together still images of paintings, drawings, and sculpture with music and commentary, you can navigate your way through an enormous amount of material in whatever order you want. If there's something you want to see again, it's a simple matter of clicking a button. The images are of incredible quality, far better than anything you'll find in art books. The educational potential for titles like this is enormous, but they also have great entertainment value as well.

Looking at this first small selection of software, we're struck by how fully-realized most of it is, as if CD-I software never went through an infancy, but was born into maturity. We can hardly imagine how it will evolve in the future.

At What Cost?

Originally announced earlier this year to list at about $1500, The Philips CD-I box carried a list price of about $1000 when introduced in November, but it hit the street at $800. Commodore has officially lowered the price of CDTV to $799, and it's too soon to tell whether the street price will go down much. The cost of CD-I will in all likelihood drop much faster than CDTV's: the competition among other manufacturers will see to that. There will also be considerable variety in the machines themselves. Like TVs and VCRs, different models will have different options. Matsushita is working on an LCD version, Sanyo a portable, and Pioneer is going to release a combination CD-I/Laserdisc player. Consumers want choice, and CD-I is providing it.

The retail prices for software are also going to be a deciding factor in the success of CD-I. For example, *Sesame Street* lists for $29.98, *Mother Goose* for $19.98, *Renaissance* and *Van Gogh* for $39.98 each, and even at the high end, *Time-Life Photography* retails for $49.98. CDTV software prices so far have been consistently higher, ranging from $39.95 on up. We'll doubtless see prices coming down even further as the medium penetrates the market.

The Future

We wish it weren't so, but the cold, hard facts are that Commodore is marketing CDTV just like it markets the Amiga: hardly at all. With names like Philips, Sony, Panasonic, Matsushita, Grundig, and Pioneer behind it, can there be any doubt CD-I will be the dominant force in multimedia machines?

Of course, there is considerable doubt whether there will even be a market for these wonderful new devices. The world economic situation is dismal and the market for these relatively expensive toys isn't what it might have been a few years ago. Consumers are notoriously reluctant to accept new technologies and they very well may give the thumbs down to both machines. In any event, there will be room in the consumer market for only one of these new multimedia formats. We have seen the future and the future is CD-I.

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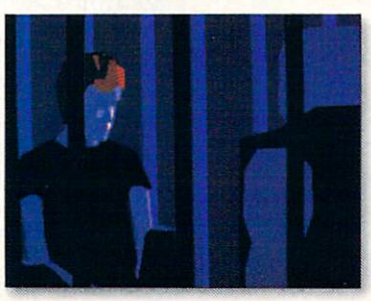

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AT PRESS TIME

Amiga Laptop Delayed

Just as our last issue was going to press with its announcement of a new laptop Amiga computer, we received word from Newer Technologies - the Macintosh peripheral company that was planning to produce the new machine - that they were putting the project on hold in order to 'assess the product's viability.'

The 'Model 10' Amiga-compatible LCD laptop computer was supposed to have debuted at the World of Commodore Show in Toronto during the first week of December. But shortly before the show, Newer Technologies received a letter from the Hunter Group, the show's producer, banning the 'Model 10' from being shown at WOC. Karen Jewell, a spokesperson for the Hunter Group, explained to *.info* that 'Commodore has to give their approval for anything that is shown at WOC - it's in the show contract that every exhibiter signs.'

She said that the Hunter Group told Commodore about Newer Technologies' plans to exhibit an Amiga-compatible laptop, and Commodore International Vice President Ron Alexander was the one who passed along the 'no' ruling.

When contacted by *.info*, Alexander told us the reason for the ban was because 'Newer Technologies is not authorized to use the "Commodore" or "Amiga" names, nor can they violate our copyrights or patents. And they are not authorized to use the Amiga chipset.'

Rick Estes, the Newer Technologies engineer in charge of development of Amiga laptops, was asked by Commodore to meet with Commodore management and legal staff in West Chester shortly after the WOC Show. Newer Technologies will not comment on the meeting other than to say that 'talks are continuing.' But Commodore's Alexander told *.info* '[Newer Technologies] has no laptop computer. It's vaporware.' He said, 'they showed us no diagrams and no prototypes, and said they had nothing ready to show. If they want to come back to us with a working prototype, we'll be happy to continue our discussions. But we haven't heard from Newer Technologies since our initial meeting in December.'

We asked Newer Technologies if they did, indeed, have a working prototype and their only comment was 'No comment.' However, NT engineer Rick Estes did confirm that Newer Technologies 'does not have any agreements with Commodore at this time' and 'has not yet scheduled any further meetings [with Commodore.]'

In any event, indications are that an Amiga laptop computer will not soon see the light of day, at least not until all of the legal questions have been resolved.

Stay tuned for further developments.

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129	134	139	144	149
130	135	140	145	150
151	156	161	166	171
152	157	162	167	172
153	158	163	168	173
154	159	164	169	174
155	160	165	170	175
176	181	186	191	196
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201	206	211	216	221
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205	210	215	220	225
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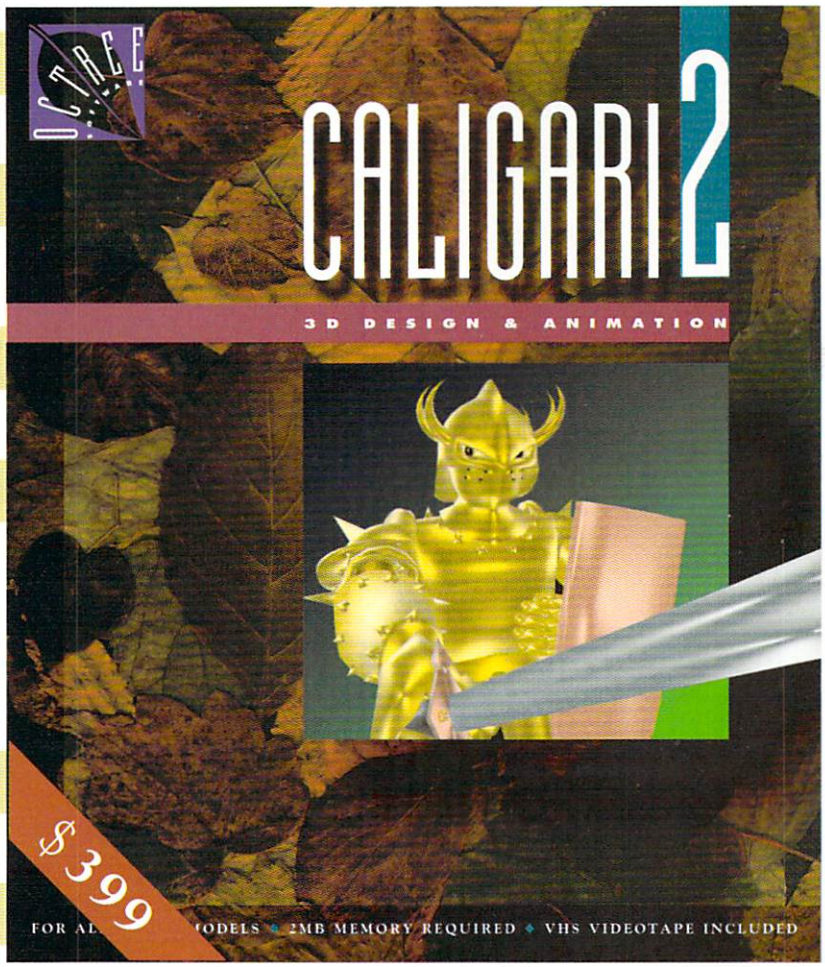

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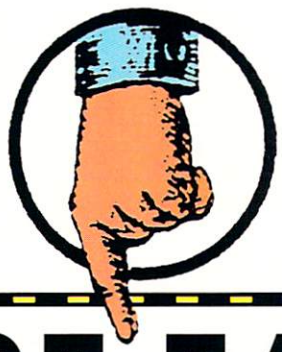

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